No. 284 DECEMBER 1961 Vol. LXXI

THE ECONOMIC JOURNAL

THE QUARTERLY JOURNAL OF THE ROYAL ECONOMIC SOCIETY

Edited by C. F. CARTER *and* E. A. G. ROBINSON
Assisted by R. C. O. MATTHEWS

I. ARTICLES

The Variorum Edition of Alfred Marshall's *Principles of Economics* C. W. GUILLEBAUD 677
The Reorganisation of the International Monetary System: An alternative proposal J. W. ANGELL 691
On the Measurement of Technological Change E. D. DOMAR 709
Long-run Implications of Alternative Fiscal Policies and the Burden of the National Debt F. MODIGLIANI 730
The Optimal Growth Path for an Underdeveloped Economy R. M. GOODWIN 756
A Method for Separating the Effects of Capital Accumulation and Shifts in Production Functions upon Growth in Labour Productivity L. JOHANSEN 775

II. REVIEWS (For a List of Books Reviewed see inside cover) 783

III. NOTES AND MEMORANDA

Keynes' Aggregate Supply Function:
A Comment A. KOOROS 849
Further Comments H. NEISSER 850
Mr. Rosenberg on "Capital Imports and Growth":
A Comment D. J. DELIVANIS 852
A Further Comment R. J. BALL 853
A Rejoinder W. ROSENBERG 855
"Income and Investment in the United Kingdom, 1856–1914":
A Note K. MAYWALD 856
A Reply C. H. FEINSTEIN 857
A Note on the Real Balances Effect J. A. GHERITY 859
Current Topics 861

IV. RECENT PERIODICALS AND NEW BOOKS 866

LONDON: MACMILLAN AND CO. LIMITED
NEW YORK: ST. MARTIN'S PRESS
PRICE FIFTEEN SHILLINGS NET

REVIEWS

		PAGE
ASHTON (R.). *The Crown and the Money Market*	By C. WILSON	817
AUSUBEL (H.). *In Hard Times. Reformers among the Late Victorians*	By R. J. LAMBERT	814
BAUER (P. T.). *Indian Economic Policy and Development*	By I. M. D. LITTLE	835
BAUMOL (W. J.). *Economic Theory and Operations Analysis*	By H. MAKOWER	790
BENDIX (R.). *Max Weber. An Intellectual Portrait*	By W. G. RUNCIMAN	844
BLACK (R. D. C.). *Economic Thought and the Irish Question, 1817–1870*	By G. A. DUNCAN	812
CARTER (C. F.). *The Science of Wealth. An elementary textbook of economics*	By E. V. MORGAN	791
CLEGG (H. A.), KILLICK (A. J.), and ADAMS (R.), *Trade Union Officers. A Study of full-time officers, branch secretaries and shop stewards*	By H. S. KIRKALDY	822
COX-GEORGE (N. A.). *Finance and Development in West Africa. The Sierra Leone experience*	By I. G. STEWART	840
FEARN (H.). *An African Economy. A study of the economic development of the Nyanza Province of Kenya, 1903–1953*	By D. T. JACK	838
FREEMAN (R. E.) (Ed.). *Postwar Economic Trends*	By S. DELL	827
GETHYN DAVIES (S.) (Ed.). *Central Banking in South and East Asia*	By T. H. SILCOCK	797
GROSSMAN (G.) (Ed.). *Value and Plan*	By A. NOVE	831
HACKER (A.). *Political Theory: Philosophy, Ideology, Science*	By D. THOMSON	843
HARRIS (S. E.) (Ed.). *American Economic History*	By A. J. YOUNGSON	816
JACKSON (R. M.). *The Machinery of Local Government*	By U. K. HICKS	819
LAMARTINE YATES (P.). *Food, Land and Manpower in Western Europe*	By G. R. ALLEN	832
LAYTON (E.). *Building by Local Authorities*	By M. BOWLEY	800
LERNER (S. W.). *Breakaway Unions and the Small Trade Union*	By H. S. KIRKALDY	823
LYNCH (P.) and VAIZEY (J.). *Guinness's Brewery in the Irish Economy*	By G. A. DUNCAN	810
MAHR (A.). *Volkswirtschaftslehre*	By D. J. DELIVANIS	793
MARSHALL (A. H.). *Financial Administration in Local Government*	By U. K. HICKS	819
NOVE (A.) and DONNELLY (D.). *Trade with Communist Countries*	By A. K. CAIRNCROSS	830
PARKINSON (J. R.). *The Economics of Shipbuilding in the United Kingdom*	By D. T. JACK	805
PREST (J.). *The Industrial Revolution in Coventry*	By D. E. C. EVERSLEY	808
RIMMER (W. G.). *Marshall's of Leeds, Flax-Spinners, 1788–1886*	By E. M. SIGSWORTH	807
ROLPH (E. R.) and BREAK (G. F.). *Public Finance*	By A. R. PREST	798
SARGANT FLORENCE (P.). *Ownership, Control and Success of Large Companies. An analysis of English industrial structure and policy, 1936–1951*	By J. R. S. REVELL	825
SAYERS (R. S.). *Modern Banking. (Fifth Edition.)*	By G. CLAYTON	796
SCHUMPETER (E. B.). *English Overseas Trade Statistics 1697–1808*	By P. DEANE	801
SCOVILLE (W. C.). *The Persecution of Huguenots and French Economic Development, 1680–1720*	By C. WILSON	841
SIDNEY (E.) and BROWN (M.). *The Skills of Interviewing*	By J. G. W. DAVIES	847
SRAFFA (P.). *Production of Commodities by Means of Commodities. Prelude to a critique of economic theory*	By SIR ROY HARROD	783
WEBER (M.). *The City*	By W. G. RUNCIMAN	844
WHETHAM (E.). *The Economic Background to Agricultural Policy*	By G. R. ALLEN	803
WILSON (T.). *Inflation*	By SIR DENNIS ROBERTSON	787

THE ECONOMIC JOURNAL

DECEMBER 1961

THE VARIORUM EDITION OF ALFRED MARSHALL'S *PRINCIPLES OF ECONOMICS*

IT was in the year 1934 that Maynard Keynes approached me with the suggestion that I should produce a Variorum Edition of Marshall's *Principles*,[1] and I agreed to do this. He may have been moved to select me partly because Marshall was my uncle, my mother's brother.

Since that date I have laboured, off and on, at this task. I have regarded it as a spare-time occupation in an otherwise active and busy life, something to pick up when I had nothing more urgent to do; and, more particularly, when the spirit moved me. There were periods when I did not touch it for years on end, the biggest gap being the whole of the Second World War. It has proved to be an extremely laborious task; and perhaps the best way in which I can show this is to say what it is that I have set myself to do.

I should explain at the outset that, although these two volumes are described as a variorum edition of Marshall's *Principles*, they differ in scope and purpose from the usual meaning of this term. The *Oxford English Dictionary* defines a variorum edition as follows: "An edition especially of the complete works of a classical author, containing the notes of various commentators or editors." With the single exception of Edgeworth in relation to the theory of barter, I have not been concerned at all with controversies that have arisen over Marshall's ideas; but only with variations in the text, footnotes, etc., of the different editions.

My Variorum Edition is in two volumes: Volume I consists of the whole of the eighth and final edition of the *Principles*, unaltered except for the correction of a large number of misprints, most of which are mere cross-references, but some are definite errors requiring an emendation of the text. I will refer to one or two of these later. The only other respects in which Volume I differs from the old eighth edition of 1920 are the insertion of editorial signs relating to corresponding sections of Volume II; and the size of type. The Cambridge University Press, after a good deal of experimenting, eventually found a size of paper and of type for both text and footnotes, in each case appreciably larger than the original, such that it was possible to

[1] A. Marshall *Principles of Economics, Variorum Edition*, edited by C. W. Guillebaud for the Royal Economic Society. Printed by Cambridge University Press. Published for the Society by Messrs. Macmillan, London (New York, The Macmillan Company), 1961. 2 vols. pp. xxxiv + 858; and x + 886. £6 per set; to Fellows of the Royal Economic Society £4.

preserve completely the old pagination and make every page end with the same word in the new as in the old eighth edition. This is a matter of real importance, since the pagination of the *Principles* has remained almost unchanged for more than fifty years—*i.e.*. since the fifth edition of 1907 (apart, that is, from a recent reprint by Messrs. Macmillan), and there has arisen a very considerable literature referring to particular passages by their page numbers. The Press are to be congratulated on a remarkable typographical feat, which does credit to them, while adding greatly to the usefulness of the new edition. It would indeed be difficult to praise too highly the collaboration of the Cambridge Press in the production of these two volumes.

Volume II contains the whole of the editorial notes. My first main object has been to indicate from which edition each sentence, paragraph or section in the eighth edition dates. In order to avoid an immense amount of unnecessary repetition which would have swollen Volume II to an altogether inordinate size, I have disregarded merely verbal changes or alterations in the order of sentences if after careful consideration I could detect no change in either sense or emphasis; that is to say, when the alterations are simply matters of style. In such cases I say that the passage in question dates " substantially " from that edition in which it first appeared. The difficulty of this part of the work was much enhanced by Marshall's habit of transferring passages say from Book VI to a chapter in Book IV, or vice versa. Sometimes also he deleted a passage from, perhaps, the third edition, only to reinstate it subsequently without warning in, say, the fifth edition. The exercise has resembled a complicated jig-saw puzzle of fitting the pieces together; and for the most part I have had to rely upon my knowledge of the contents of the book and my memory.

In the first instance I went all through the 858 pages of the eighth edition, comparing and collating the final text with that of the previous seven editions. As I went along I gradually improved and developed my technique, with the result that when I came to go over the whole work for a second time I had virtually to re-do all that I had previously done in respect of the first four or five hundred pages. There was a further intensive period of revision during the proof stages of the last two or three years (until then none of Volume II had been in print), and though I cannot expect to have achieved 100% completeness, it is my hope that not much that is of importance will have escaped my notice.

My second main object has been to indicate any changes in a passage that might seem to be of significance before it reached the final form in which it appeared in the eighth edition.

My third object has been to reproduce all those passages in earlier editions which were subsequently deleted and which do not appear in the eighth edition. These extracts, often of considerable interest, make up a large proportion of the whole of Volume II.

Over and above the three purposes to which I have just referred, I have

reprinted in Volume II all those articles by him to which Marshall refers in his eighth edition and which have not already appeared in *The Memorials of Alfred Marshall*, edited by A. C. Pigou. These include amonst others: his reply in Volume II of the ECONOMIC JOURNAL to Cunningham's criticisms of his handling of economic history; his article "On Rent" in Volume III of the same JOURNAL; the substantial part of his article on "Distribution and Exchange" which Pigou very naughtily omitted from *The Memorials*; the early paper on "Theories and Facts about Wages," which Marshall read in 1885 to the Industrial Remuneration Conference, and which contained the first outlines of his general theory of distribution; and I have also reprinted the short, but very interesting, summary of his theory of value from a different angle in Book II, Chapter 1, of his *Industry and Trade*.

Finally, I have printed for the first time a number of controversial letters to Edgeworth and John Neville Keynes which are now to be found in the Marshall Library at Cambridge, and which had escaped the conscientious but remorseless hands of Marshall's literary executor, Pigou.

There is a new combined index to both volumes at the end of Volume II. The original index to the *Principles*, which was produced by Mrs. Marshall, is inadequate and incomplete; for though she was an economist she was not a trained indexer. The new index has been prepared by Mrs. W. S. Allen, to whom I am much indebted for the skill and time and trouble she has taken to make it reasonably comprehensive. Since she is a trained indexer, but not an economist, I have had to spend a considerable amount of time in order to ensure to the best of my ability that it will be as serviceable as possible for the economists for whom the edition is primarily intended.

Volume II, including the index, runs to 886 pages. I hasten to add that at least four-fifths of this consists of Marshall's own words; and, proceeding on the assumption that it is Marshall's writings rather than those of the Editor which will be of main interest to the reader, I have put extracts from Marshall in larger, and purely editorial material in smaller, type.

I have kept my own editorial notes down to the bare minimum needed to indicate the editions from which passages date, and the changes, if any, which they underwent before the final version was reached. I have refrained throughout from making any comment on the nature or possible significance of changes that Marshall made in his successive editions. The main justification for this, if indeed it stands in need of any, is to be found in the length of the existing second volume: an editorial commentary would inevitably have involved a third volume.

It may be well to recall that the eight editions of the *Principles* were spaced unevenly over a period of thirty years from 1890 to 1920. The first edition came out in 1890, and the second in 1891. This latter involved a great deal of rearrangement and rewriting, as in it Marshall amalgamated the former Book V, "The Theory of Equilibrium of Supply and Demand," with Book VI, "Cost of Production Further Considered," into a single Book V,

under the general title "The Theory of the Equilibrium of Supply and Demand"; while the former Book VII on "Value, Distribution and Exchange" now became Book VI, and Marshall adhered in future to his arrangement. I might quote a characteristic passage from the Preface to his second edition, in which he said that the chief purpose of the fusion of the former Books V and VI was:

> "To throw light on the position held by the element of Time in economics, and to show clearly how Time modifies the reciprocal influence of the earnings of workers and the prices of the goods made by them. For as regards fluctuations in short periods the leading role is held by prices, and a subordinate one by earnings: but as regards the slow adjustments of normal value their parts are interchanged; and the influence which prices exert on earnings is less than that which earnings exert on prices."

Marshall brought out his third edition in 1895, when I would judge that his powers as an expositor were at their peak. It seems to me that from then onwards the continuing process of polishing, revision and compression to which the book was subjected, even though this was combined with considerable expansion in some directions, did a good deal to devitalise it; and so rob it of some of the spontaneity and freshness of expression, which characterised it in this and the two earlier editions.

The fourth edition, which appeared three years later in 1898, was shorter by a few pages than the third; although in actual words it was probably slightly longer, as a number of the more technical sections previously in the text were transferred to Notes in smaller type, which were placed at the end of chapters. Marshall had been growing alarmed by the way in which the book was increasing in length with each successive edition; and he determined in this case that anything new that he added should be offset by the deletion of what he felt to be less-essential matter. Hence a good many paragraphs in the text and footnotes, of historical interest, dating from the earlier editions, were omitted. In this edition Marshal paid special attention to his doctrine of quasi-rent. He collected his main study into a single chapter (Book V, Chapter IX) entitled "Quasi-rent or Income from an Appliance made by Man, in relation to the Value of its Produce"; and it was in this edition that this doctrine was most clearly and forthrightly stated. In the fifth edition, which appeared in 1907, nine years after the fourth, and which might be described as "the *Principles* in modern dress," Marshall made extensive alterations in the arrangement; he added an appreciable amount of new material, and rewrote a number of sections, in particular those dealing with quasi-rent. The whole of Chapters II–VI in Book I of the earlier editions (on the Growth of Free Industry and Enterprise, and of Economic Science, and on Scope and Method) were relegated to the end of the volume in the form of appendices and a number of long Notes, which had been placed at the end of chapters in the fourth or earlier editions,

were treated in a similar manner. Someone at the time remarked that the *Principles* appeared to have undergone a severe attack of appendicitis.

The sixth edition (1910), the seventh (1916) and the eighth (1920) contained very little new matter, and the pagination throughout was virtually identical with that of the fifth edition. In detail, a number of the changes were of considerable interest as reflecting Marshall's endeavour to take some account of economic developments which had become more prominent in the twentieth century; as, for example, his reference to " those great joint-stock companies which often stagnate but seldom die," which was inserted in the seventh edition (1916).

It will be observed that the great majority of the changes which Marshall introduced into the text and arrangement of the *Principles* took place in the second to the fifth editions. By the fifth edition it had reached what was virtually its final form.

Turning now to some of the results which emerge from the Variorum Edition, I will begin by mentioning one or two of the misprints that I have detected in the text of the eighth edition of the *Principles*. The most outstanding, and also the most surprising of these, is in Book VI, Chapter II (in the fourth line on p. 526). The sentence in question runs as follows:

> " The nominal value of everything, whether it be a particular kind of labour or capital or anything else, rests, like the keystone of an arch, balanced in equilibrium between the contending pressures of its two opposing sides; the forces of demand press on the one side and those of supply on the other."

It does seem to me perfectly clear that the words " The nominal value of everything " should read " The normal value of everything." The really surprising thing is that the sentence in which the word " nominal " occurs dates from the first edition; and it remained unchanged through every edition down to and including the eighth. In emending the text to make " nominal " read " normal," I have been influenced by the following considerations: (i) In the first edition this sentence was preceded a few pages earlier by the following sentence, which clearly applied to the whole of the subsequent discussion: " Let us begin by taking a general survey of the causes that govern true normal value, estimated for a period long enough to enable the economic causes concerned to work out their chief normal effect." (ii) Quite apart from this statement, the wording of the sentence as a whole can leave no doubt that Marshall must have had normal value in mind when he wrote it. (iii) The *Oxford English Dictionary* definition of " nominal " as qualifying price is " virtually nothing." Another example can be taken from a somewhat complicated footnote at the bottom of p. 436, dealing with the way in which the existence of alternative uses of land can affect the classical doctrine that rent does not enter into cost of production. Marshall is supposing in the text that a tax has been levied on all hops wherever grown; and the first sentence in the footnote runs as follows:

> "If for instance he [the farmer] reckoned that he could get a surplus of £30 above his expenses (other than rent) in spite of the tax by growing hops, and a surplus of only £20 above similar expenses by growing any other crop, it could not truly be said that the rent which the field could be made to yield by growing other crops, 'entered into' the marginal price of oats."

The sense of this passage requires that the last five words should read "the marginal price of hops" and not "the marginal price of oats"; and a scrutiny of the changes this footnote went through in the earlier editions shows how the mistake could easily have arisen. In this general connection I recall one of Marshall's aphorisms, contained in a letter to Edgeworth:

> "It is *wisest not* to say that 'rent does not enter into cost of production': for that will confuse many people. But it is *wicked* to say that 'rent *does* enter into cost of production,' because that is *sure* to be applied in such a way as to lead to the denial of subtle truths, which in spite of their being subtle, are of the very highest importance scientifically and also in relation to the practical well-being of the world" (*Memorials*, p. 436).

I might add that although I have not reprinted any of the articles published in the *Memorials of Alfred Marshall*, I have quoted extensively from his correspondence there, wherever this seemed to throw light on any passage in the *Principles*.

Volume II of this edition is, as I have said earlier, largely concerned with changes made by Marshall in the way in which he presented his ideas; and also with the reinstatement of material in his earlier editions which he subsequently cut out. Two questions then arise: first, was there any substantial development in his doctrine itself; and secondly, should significance in general be attached to his deletions as representing an alteration in his attitude towards what he himself had previously written?

With regard to the first question, it is well to remember that when the first edition of the *Principles* came out in 1890, Marshall was already forty-eight years of age. Keynes says in his Memoir that Marshall spent nine years (1881–90) in the preparation of his book. Moreover, during the twenty years preceding its publication he had been teaching and intensively studying economics; while the evidence of a number of his own statements goes to show that the fundamental bases of much of his theory had been worked out as far back as the early 1870s. His *Principles* was the product of the full maturity of his mind. A big change did unquestionably take place in the two decades *before* 1890; and this was in Marshall's own approach to his subject, a change which took the form, above all, of the widening of his equipment on the applied side of economics. By a gradual process, in which a visit to the United States in 1875 played an important part, the young pure theorist, who was accustomed in 1869 (to use his own words) "to think in Mathematics more easily than in English," became the most

deeply and widely informed exponent of economic affairs since Adam Smith. It could indeed be said that, having spent the years 1867–70 in translating Mill's version of Ricardo's or Smith's doctrines into mathematics, Marshall then employed the ensuing twenty years in translating his mathematics back into English, and relating his reasoning as far as he could to the problems and complexities of the real world.

As my edition shows, Marshall made very numerous and extensive changes in the *Principles* in the second to the fifth editions. But it is quite clear from the prefaces to the successive editions that he himself did not claim for them more than that such rewriting and additions as he had made had been undertaken in order "to meet the need which experience has shown to exist for fuller explanation on certain points." Edgeworth, who reviewed the first edition in the *Academy* and the second and third in the ECONOMIC JOURNAL, found nothing that he singled out as representing a new idea or change of doctrine. I do not regard the change in his definition of social capital which he made in the third edition, and which caused him so much heart burning at the time, as an example of an important change. He himself said of this in a letter to J. B. Clark: "I have shifted my use of the word capital, but I have not changed my doctrines as to capital by a hair's breadth." Nor does the fact that the representative firm, as such, did not make its bow to the world until the second edition of 1891 constitute a valid exception. For already in the first edition the essence of the idea was there, when he wrote that when seeking the normal supply price under increasing returns, "we must select as representative a business which is managed with normal ability and so as to get its fair share of the economies both *internal* and *external* resulting from industrial organisation." And in a letter to Flux written in 1898 he said: "The chief outcome of my work in this direction [increasing returns] which occupied me a good deal between 1870 and 1890, is in the Representative Firm idea."

When new material was introduced in the later editions, for example the big expansion of the Mathematical Appendix in the third edition, it seems as a rule to have been merely a matter of incorporating into the *Principles* results that he had worked out in the years prior to 1890. I have referred earlier to the very extensive changes made in the formulation of the doctrine of quasi-rent, especially in the fourth and fifth editions; and I am aware of the fact that attempts have been made to show that these changes amount to a significant modification of the doctrine itself. For my part I remain wholly unconvinced that there is any truth in this contention. What is true is that Marshall found more difficulty in getting his notion of quasi-rent across to his readers than any other part of his theoretical construction; and he was continually tinkering with his exposition in the hope of making it clearer. I must say that I do not regard his final effort in this direction in the fifth edition as having been very successful. I think most people would find the more straightforward account in the fourth edition easier to grasp

than the elaborate parable of an imaginary shower of meteoric stones, which was the solution he adopted in his fifth edition. I can remember hearing it said when I was an undergraduate that very few economists in the world outside Cambridge (where we benefited from the oral tradition handed down by Professor Pigou) really understood what Marshall's doctrine of quasi-rent was about. Edgeworth certainly did not grasp the nature of Marshall's "short period" analysis, at least not until he was severely castigated by the outraged author of the term, as I shall be indicating a little later. How far this is still the case to-day I have no means of knowing.

Returning to the general issue, my own view is that all Marshall's major theories and doctrines were already crystallised in their final form, in content though not in expression, when he brought out his first edition; and the collating of the different editions does not appear to me to support the thesis that there was any real evolution or development of his ideas between 1890 and 1920.

This conclusion raises in turn a more fundamental issue. Why should Marshall have ceased after 1890 to develop any further his thinking in the field of economic theory covered by the *Principles*? The most plausible answer I can find is that as he grew older his mind became increasingly absorbed with the more realistic side of economics (cf. his *Industry and Trade*), and with its ethical aspects; and that he was no longer interested in extending his ideas on the abstract and analytical side. He realised that he had made important advances when he brought out his *Principles*, and he was content to leave others to carry on where he had left off. Moreover, to the misfortune of subsequent generations of economists, he was very desirous that his book should have a wide circulation and influence amongst the intelligent and educated lay public, in particular, business-men, as had been the case with Adam Smith's *Wealth of Nations*; and he therefore omitted much that he regarded as being of merely theoretical interest.

The other matter that I raised earlier is that of the possible significance of the very considerable amount of material in the earlier editions which Marshall subsequently deleted. Now the vast majority of these deletions appear to me to fall into three main categories. First, there were expressions of opinion which had given rise, either publicly or privately, to criticism; Edgeworth in particular was an indefatigable correspondent. If the statement at issue was important Marshall would usually alter or expand the wording. But often he would merely suppress it, not because he disagreed with it, but because he could not afford the space to defend or develop it; while he regarded controversy in general as a great waste of time and energy. Secondly, some of the rewriting, for example in the case of the chapters on quasi-rent, was very thorough; and when he had arrived at what he believed to be an improved formulation of his views, which seemed less likely to give rise to misunderstanding, he naturally omitted the earlier version. Thirdly, he came to regard the almost inevitable tendency of his book to grow in

length as a great evil: the first edition was 750 pages, but in the fifth the text and the appendices in smaller print had become 858 pages. Wherever possible, therefore, if he added fresh material he endeavoured to balance it by cutting something else out. For this reason, if for no other, it is very unsafe as a rule to seek to draw positive conclusions from Marshall's deletions.

I should add here that in the foregoing part of this article I have drawn rather extensively on my own editorial introduction to Volume II of the Variorum Edition. Finally, there are two other matters to which I would like to draw attention. The first is that if I am correct in saying that so far as major doctrine is concerned, the *Principles* of the eighth edition of 1920 is identical with the *Principles* of the first edition of 1890, it is surely a remarkable fact that in economics of all subjects, a treatise published in 1890 should still be a living and standard work, not merely recommended as a museum classic, but still relevant to the world of to-day; even though some parts, *e.g.*, the representative firm idea, are no doubt less applicable to modern conditions than they were when Marshall wrote. I can think of no book that has been published since which could be said to replace Marshall's *Principles*. My second point is that Marshall himself estimated, I believe, that on the average each fresh edition of the *Principles* cost him a year's work, which meant seven years out of his effective working life. In terms of opportunity cost, it may be doubted whether the result of his revisions could be said to compensate for what he might otherwise have found time and energy to produce.

I had intended to pick out a number of the more interesting passages from the earlier editions, which do not appear in the eighth edition, but space does not permit of my giving a representative selection. I will instead conclude by giving extracts from five of his hitherto unpublished letters, the first three of which were addressed to John Neville Keynes (the father of Maynard Keynes) at a time when he was reading the proofs of the first edition of the *Principles*; while the last two were written to Edgeworth.

On October 26, 1888, Marshall wrote to J. N. Keynes:

> "I intended to tell you that I acted deliberately in applying the curves only to problems of Normal Values and not to Market values. Market curves can be drawn: but I should agree with Wicksteed that they could never have a shape that would correspond to the Law of Increasing return. And I don't think they would be of much practical use. I considered whether I would introduce 'market' curves, and explain the difference between them and Normal curves: but thought I should only bother the reader.
>
> "And now I want to ask your kind advice on a difficult point.
>
> "What I say about *Derived* Demand and Supply Book V ch. V §§1, 2 and 4 is, in my own conceited opinion, new and important: but the exposition gave me a great deal of trouble and is I fear unsatisfactory yet. In particular I have taken an illustration in the text (not in the footnote) about plasterers which I knew at the time was not in perfect logical

harmony with the assumption that the curves apply only to periods sufficiently long to allow free action to the normal forces of supply (in this case the growth of plasterers). I took that particular illustration partly because it is a striking one, partly because I shall want it a good deal in Book VI: [1] and I thought that if I apologized for and explained away this logical change of point of view, I should bother the readers: and that if I said nothing about it probably no one would find it out. Also I took care to say nothing of the possibility of the supply curves sloping downwards towards the right. (I have suppressed hundreds of possible queer cases of that sort for fear of overburdening the book by statements of the conditions by which they had to be safeguarded.)

"Now the question I want to ask is:—Would it be best a to explain the change of venue involved by the plasterers' illustration or b to destroy it ruthlessly or c run the risk of detection by lynx eyed (or minded) readers?"

Keynes' reply is not extant, but Marshall did insert a warning to his readers (Book V, Chapter VI, p. 382, of the eighth edition) to cover this point.

The second letter to Keynes from which I quote here was dated November 26, 1889:

"I regard Consumers' Rent as a sum of money not as an amount of utility.

"I hold that Jevons' great error was that of applying to utility propositions that are only true of price. It was here that he thought himself most profound: and it is because I think he was wrong in this one point in which he differed from his predecessors von Thünen and Cournot that I consider his claims to greatness do not to any considerable extent rest on his Theory of Political Economy.

"I can see no connection between the loss of Consumers' Rent and the loss of Total Utility resulting from a tax, unless it is known whether the commodity taxed is one consumed by the rich, by the poor, or by all classes alike."

On December 2, 1889, Marshall wrote again:

"I hope I did not imply that you confused hedonics and economics. I did not at all mean to. What I meant is that the very fact that my protest against Jevons' systematic confusion between the two has been (deliberately) a silent one, makes me very anxious that my consumer's Rent should not be sewn up into his Total Utility. I had that prominently in mind when writing on the burden of a tax. I wanted to make clear that economic statistics have nothing to do with Utility but only with its rough money measure.

"I considered for a long time whether I would discuss the difficulty you sense about the change in consumer's rent derived from other things consequent on a diminished purchase of coals. Perhaps I shall in consequence of the difficulties having struck you insert a line or two in the Mathematical Appendix to say: If he spends less on coals the marginal

[1] In the first edition of 1890, Book VI was entitled "Cost of Production, Further Considered"; while Distribution was treated in Book VII.

utility for other purchases will be affected to an *infinitesimal* degree—infinitesimal because the whole of this class of reasoning is strictly valid only on the assumption that the purchases under discussion are small relatively to the purchaser's whole wealth."

Marshall did in fact insert a paragraph to this effect in Mathematical Note VI in his first edition.

The last two letters that I shall quote are more controversial.

On April 26, 1892, Marshall wrote as follows to Edgeworth:

"Cunynghame's 'successive $\frac{\text{utility}}{\text{demand}}$ curves' I think I can understand. ('Successive' may imply a regular correlation of sequences, which there is *not*.) I should call them 'temporary' demand curves, the term 'temporary' being carefully distinguished from 'short-period' a technical term used for a special purpose which is quite distinct from that which Cunynghame has in view.

"It is a free country. I deliberately decided that temporary demand curves (as contrasted with normal demand curves whose shape could be shifted if need be) would not be of any practical use, and that this would encumber the reader and divert his attention from more important things. I have discussed the notions which they represent in Book III, $\frac{\text{1st edition, ch. III. §7}}{\text{ch. IV, §6, and in Book V}}$ ch. XI, §4 $\frac{\text{ch. V, §1}}{\text{ch. XII, §1}}$ and $\frac{\text{ch. VIII, §6}}{\text{ch. XIII, §6}}$ (all of these except the 2nd are practically unchanged from the original MSS of 17 years ago).[1]

"As to his 'Successive cost curves,' I do not know what they are. I knew others thought highly of them, and put in a note acknowledging them as fully as I could without committing myself to saying I understand them. (Perhaps I implied that I understood more about them than I intended to. I thought the words 'seems to come in effect' implied I was not sure whether I understood them: but perhaps I should have used a different phrase.) When I read his article I knew I did not understand them, and thought he did not. I then wrote to him, and I have now no doubt in my own mind that he does not. He is quick, but impetuous; and all through his life has constantly supposed himself to know what he means when he does not. You are graver in character, and write with more responsibility. I think therefore I am justified in asking you, before you lend your great authority in support of what I think a half-thought-out notion to answer this simple question. Let

[1] The references in the upper of the two lines relate to the first edition, while those in the lower line relate to the second edition; the exception made in the sentence in parentheses relate to Book V, Chapter XI, § 4, in the second edition.

The corresponding chapters and sections in the eighth edition, and so in Volume I of the Variorum Edition, are as follows:

1st edition, Book III, Chapter III, § 7, corresponds to Book III, Chapter IV, § 6, in the 8th edition.

2nd edition, Book V, Chapter XI, § 4, corresponds to Appendix H, § 3, in the 8th edition.

1st edition, Book V, Chapter V, § 1, corresponds to Book V, Chapter XIII, § 1, in the 8th edition.

1st edition, Book V, Chapter VIII, § 6, corresponds to Book V, Chapter XIV, § 6, in the 8th edition.

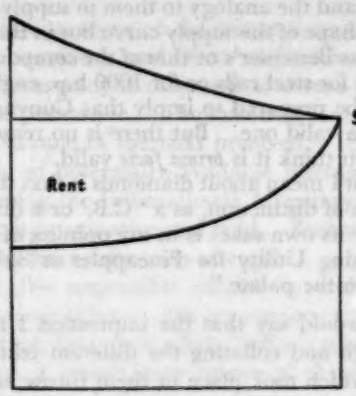
$y = f(x)$ be the equation to one of Cunynghame's successive cost curves: What does the y mean, and what does the x mean? There is no answer in Cunynghame's paper, which in itself is an omission that seems to give warning of danger. I really do not know. If you do, please tell me.

"You have gone beyond Cunynghame. For he does use a new term; while you utterly wreck my pet phrase 'short period,' by applying it to a use which seems to me likely to introduce calamitous confusion. The changes which arise from the gradual rise and decline of fashion and familiarity, the feeling that a thing is select or that it is vulgar, of being unique like an old book or the key of a Bramah lock, or useful like screws in machinery made to Whitworth's gauge which can be easily replaced if lost, these things have nothing in common with the distinction between 'short' and 'long' period supply prices in my own pet and peculiar use of the term. For they represent casual influences, and it corresponds to a great fundamental difference, common to all branches of work; that namely between periods which are not and those which are long enough to allow the supply of the agents of production (workers, material plant, specialization of skill and machinery, business organization and connection) to be adapted to the demand: For the one supply price = Total cost of production at the margin. For the other it means Prime cost mitigated by a fear of spoiling the market. Prime cost itself, being made up in a great measure of quasi-rents. As the parent of this specialised term, I cannot refrain when I see you plunging it into a medium in which it cannot breathe, from calling *MURDER!* I ask Cunynghame whether 'successive' meant 'short period,' and he said no! He says also that 'successive cost' does not mean the same as my 'particular expenses.' (p. 483). But I fancy it must be akin to that, more or less."

There is one (at first sight) surprising statement in the letter I have just quoted: "Prime cost itself, being made up in a great measure of quasi-rents." I call this surprising because in formulating his theory Marshall was always insistent that a quasi-rent is a surplus above prime cost—the net income (if any) of an appliance of production *after* prime costs have been covered. The statement in his letter can, however, be reconciled with his own doctrine on the assumption that in making it, he was thinking of the incomes of the owners of those factors of production which constitute prime cost. The wages paid to the process workers in a factory are obviously part of the prime cost of its output; but at any given moment these wages may or may not correspond to the normal supply price of that category of labour. If there is a strong demand for the product, say motor cars, and a shortage of skilled mechanics, their wages may contain a large element of quasi-rent, in Marshall's sense of the term when applied to their incomes. It is, I believe, relevant to this explanation that in his earlier editions, and at the time he was writing to Edgeworth, Marshall made extensive use of the term quasi-rent when dealing with the theory of distribution. I think he found out in due course that this was confusing to his readers, and he subsequently deleted most of the references to quasi-rent in Book VI.

Edgeworth must have replied by return of post and sent the soft answer which turns away wrath, because only two days later, on April 28, 1892, Marshall wrote to him again:

"You are good and kind and patient as usual. I am distinctly of opinion that the laws that govern the supply curve have little or nothing in common with those that govern the demand curve; because in demand there is nothing corresponding to the economies of production on a large scale, the difference between Prime Cost and Total Cost or which is nearly the same thing between causes that govern the application of Fixed and circulating capital etc., etc., which give rise to the special features of supply. I think Jevons did great harm by talking of supply-price as measuring the disutility curve. In picking blackberries, the disutility curve of effort and the supply curve are practically the



same thing and they are in *pari materia* with the demand curve or the utility curve. But in the case of aneroid barometers etc., the economic supply curve has but the slightest connection with the laws of disutility; for the greater part they are not in *pari materia* at all. I maintain that Cournot and others knew that: and that Jevons' talk about utility and disutility struck the popular mind merely because it put out in broad clear light a very elementary fact, which could be explained even to children. In other directions I think he did good; but in this I think his influence was to obscure the real nature of cost of production. You may repeat any of this that you like to Palgrave.

"Cunynghame seems to me hopelessly obscure. He may have made a contribution; but I cannot find out at all what it is. In fact to quote Cummings striking description of Toynbee Hall work, C's seems to me to be 'undergraduate rather than graduate work.' He has all a graduate's ability but none of a graduate's patience.

"As regards supply the case is this. I have always held and taught in lectures year after year that Producer's rent cannot be represented in the supply curve except in curves in which you can ignore the economies

of organization and production on a large scale. In the second Edition I adopted the name *particular expenses* curve for those in which you can do this. Cunynghame claims, as I understand to prove that this is wrong and that you can do it somehow. He may mean something but I cannot after my patient study of this article and his very long letters about it form the smallest notion of what he does mean. And though I cannot prove a negative, I have in my own mind no doubt that he does not himself know, and that if he attempted to say definitely what his y and x are, some part of his argument would instantly collapse.

"That diamonds owe some of their value to their rarity is true but not so novel or striking as most of the remarks to which you commit yourself.

"That if straw hats come into fashion, or a new book gets sensational reviews and is the talk of the hour, increased supplies can be sold at a higher price is true. Such facts, I hold, correspond to raising the demand curve; and the analogy to them in supply I find not in the laws that govern the shape of the supply curve but in the fact that substantive inventions such as Bessemer's or that of the compound engine may lower the supply curve for steel rails or for 1000 h.p. engines. I myself therefore should not be prepared to imply that Cunynghame's analogy was even *prima facie* a valid one. But there is no reason on earth why you should not, if you think it is *prima facie* valid.

"P.S. What I mean about diamonds is that the law of Diminishing Utility of a mark of distinction, as a 'C.B.' or a diamond (in so far as it is desired not for its own sake) is in my opinion of the same kind as the law of Diminishing Utility for Pineapples or Salmon, of which large quantities pall on the palate."

Summing up, I would say that the impression I myself have gathered from working through and collating the different editions of the *Principles*, is that the changes which took place in them throw an instructive light on the development, not so much perhaps of Marshall's thinking, as of the way in which he expressed his thought. In the process it is possible in many instances to gain a clearer insight into the working of his mind; and I think this is particularly true of his doctrine of quasi-rent. What I have also found of great interest is to observe how much there is in the eighth edition which dates unchanged from the first edition of 1890.

Marshall's *Principles* resembles a mine, in that it holds much that is profound, concealed beneath the rounded surface of its individual sentences and paragraphs; and the seeker after enlightenment must dig for himself if he is to attain it. It is my hope that this Variorum Edition will be found to make his task both easier and more productive.

Finally, I wish to express my gratitude to the Royal Economic Society which has undertaken the risk of investing a large capital sum in financing the whole of the cost of producing these two volumes.

C. W. GUILLEBAUD

St. John's College,
Cambridge.

THE REORGANISATION OF THE INTERNATIONAL MONETARY SYSTEM: AN ALTERNATIVE PROPOSAL

I

In the last several years a number of proposals have been made for reorganising the international monetary system and for increasing its general "liquidity." Of these the most comprehensive have been the ones advanced by Professor Triffin.[1] Triffin's plan will hence be used as a preliminary framework for the general analysis and the alternative proposals presented below. What will eventually be said, however, is not restricted to the boundaries of Triffin's discussion.

Triffin's own familiar analysis of the inherent instability of the present gold-exchange system standard, and of the difficulties and dangers it can entail when a "key" currency is subjected to severe pressure, is dramatic and to my mind quite persuasive. The events of late 1960 and early 1961 provided a forceful example of the risks involved. His proposed solution, to increase the supply of potentially available international liquidity substantially by transforming the International Monetary Fund into an international central bank, is imaginative and bold. Both analysis and proposed solution have attracted deservedly wide attention.

To date, however, few responsible officials have shown much desire to put Triffin's proposals into effect.[2] My impression is that this tacit opposition arises from a feeling, first, that while Triffin's scheme would probably solve certain problems, it would leave others of almost equal importance largely untouched; and second, that it would also create grave new dangers that might be even worse than those inherent in the admittedly unsatisfactory arrangements which now prevail.

In what follows, I shall first describe briefly what seem to me to be the principal actual or alleged defects in Triffin's original proposals, and then outline the major elements of a somewhat different international monetary system which while free of these defects will, I think, effectively solve the

[1] See especially R. Triffin, *Gold and the Dollar Crisis* (Yale University Press, 1960), and his *Statement* before the Joint Economic Committee, reprinted in the Committee's *Hearings on the Current Economic Situation* (December 7 and 8, 1960); also, in those *Hearings*, Oscar Altman's detailed criticisms of Triffin. Among many other discussions of the general problems in issue, also see the Radcliffe Committee's *Report on the Working of the Monetary System* (Cmd. 827, 1959), Chapter VIII; E. M. Bernstein, *International Effects of U.S. Economic Policy* (Joint Economic Committee, *Study Paper* No. 16, January 25, 1960); and Brian Tew, *The International Monetary Fund* (Essays in International Finance, Princeton University, 1961). The suggestions made to the Radcliffe Committee by A. C. L. Day (*Report*, paras. 660, 678) are in many ways, of course, parallel to Triffin's.

[2] Though Prime Minister Macmillan has recently expressed interest in some new type of arrangement, not specified, which might produce similar end results. See *British Record* (British Information Services, New York), April 19, 1961.

problems created by our present arrangements, and in a workable and safe way. What I shall suggest is in large part, except with respect to gold, a series of substantial modifications of a number of Triffin's ideas rather than a departure in some wholly new direction. I believe that these modifications and the gold proposals taken together, however, are sufficiently different from Triffin's to constitute a separate though closely related system. No attempt will be made to comment on the revisions, I think essentially minor, which Triffin has subsequently made in his plan.[1]

II

The principal defects in Triffin's scheme, which in combination seem serious enough to bar its adoption in its present form, are as follows:[2]

1. Triffin's principal proposed remedy for serious threats to international monetary stability that are due to severe balance-of-payments pressures against one or more countries is to provide for large increases in the available supply of international "liquidity" (here a quantity), through an expansion of the I.M.F.'s proposed new deposit liabilities.[3] I agree that under proper safeguards such measures can almost certainly solve the problems of seasonal or cyclical deficits in the current-account balance of an economically advanced country which has the means and the will to enforce appropriate internal policies at the same time. Similar measures can presumably also deal satisfactorily with movements of short-term capital from such countries which are undertaken to engage in interest-rate arbitrage—and which in any event are self-limiting. They can likewise cope with most "hot-money" movements arising from profit-motivated speculation against the exchanges (though perhaps not with all: even the reorganised I.M.F. could not buy up the whole of the U.S. short-term foreign liabilities).[4]

There are other important types of balance-of-payments pressure, however, which can also threaten the stability of the international monetary system as a whole, but which cannot be remedied merely by increasing the

[1] I am indebted to Professors P. B. Kenen and S. W. Rousseas for helpful comments on the relation between Triffin's plan and an earlier draft of the ideas set out below, and on several aspects of these ideas themselves.

[2] See also the numerous other specific criticisms made by Altman (*loc. cit.*). But I think no critic would wish to disparage the contributions Triffin has made to a better understanding of the real problems in issue, or the power of his constructive imagination.

[3] The term "liquidity" is used in many senses: sometimes to denote a ratio, sometimes an existing quantity of "liquid" assets, sometimes the ability to obtain or create cash in the future, sometimes little more than a state of mind. But liquidity on any definition is always potentially inadequate, except when cash held equals total liabilities. It is an especially elusive and variable concept when applied to a "key-currency" country. What is ample liquidity to-day may, perhaps only in consequence of speculators' whims and the resulting capital movements, be judged to-morrow to be dangerously inadequate. It should also be noted that merely increasing the "quantity" of international liquidity, in the absence of other measures, in the long run solves nothing. In itself, it will not restore international balance, and it may induce inflation.

[4] Hot-money movements due to fear, as of a major internal economic crisis or a political overturn, are border-line cases which must be judged individually with respect to the appropriateness of I.M.F. action.

supply of international liquidity, and which the I.M.F. should not try to handle at all, unless on a very limited scale and temporarily. These types include pressures due to serious " primary " inflation in a country (itself due to defective internal monetary or fiscal policies), or to a persistent inability for other reasons to maintain the costs of exports or of import-substitute home products at fully competitive levels, or to currently excessive programmes of aid and investment abroad, or to " secondary " inflation in the countries receiving such foreign funds, or to the collapse (usually cyclical) of a primary-producing country's exports, or to the more enduring imbalance which can result from trying to force through development programmes on too large a scale or too rapidly, or finally, to actual or impending political upheavals. If Triffin's I.M.F. were to try to take effective counter-action in any of these latter cases it would merely load itself with burdens which could easily threaten its liquidity and even its solvency. Triffin makes no sharp differentiation between such cases and those with which the re-organised I.M.F. could properly deal, and this failure has aroused a good deal of misgiving. Yet such a differentiation is clearly essential.[1]

2. Triffin also makes no sharp differentiation, in proposing increases in I.M.F. holdings of member currencies to relieve serious balance-of-payments difficulties, between currencies that are convertible and those that are not.[2] If the financial world comes to feel that the I.M.F.'s holdings of inconvertible currencies are excessive, however, the result may easily be the creation of doubt (under Triffin's plan) about the I.M.F.'s own liquidity and even its solvency, consequent refusals by central banks to accept I.M.F. deposits in payment of international balances due, and hence the effective collapse of the whole new system. Both for these reasons, and still more to prevent I.M.F. operations from becoming a source of inflation, I.M.F. holdings of both types of currency should be specifically limited; and the limits on inconvertible currencies should probably be more severe.

3. Triffin's plan would *require* the members of the I.M.F. to keep a stated minimum proportion of their own monetary reserves, say 20%, in the form of I.M.F. deposits—a requirement which in some cases would also entail payments of gold to the I.M.F.[3] This proposed requirement seems guaranteed to arouse the hostility of central bankers, however, if only because it would interfere seriously with their own exercise of judgment and discretion and might necessitate frequent adjustments of the I.M.F. portion of their reserves. In any event, it seems to be aimed at the wrong target. The essential thing, as Triffin himself argues, is only that each member should agree to accept I.M.F. deposits in payment from any other member if the

[1] The Radcliffe Committee *Report* (especially paras. 679 f.) offers very interesting propositions which I think are at least not inconsistent with the above differentiation.

[2] The term " currency " must be understood throughout to include not only currency in the literal sense plus bank deposits but also any other demand or short-term liabilities of sorts now included in " official " exchange holdings.

[3] *Gold and the Dollar Crisis*, pp. 107–10.

latter wishes to pay with such deposits. Triffin really proposes the requirement primarily as a way of providing the I.M.F. with additional financial resources, but this objective is better achieved in other ways.

4. Triffin contemplates the utilisation of a substantial and perhaps increasing part of the I.M.F.'s total resources in investments designed to promote economic development.[1] Although he suggests that such placements should be confined to I.B.R.D. bonds or " other securities of a similar character," this suggestion too has aroused misgivings, and with some justification. Perhaps some small fraction of the I.M.F.'s resources might be so used, if only for political purposes. As a general proposition, however, it seems clear that the assets underlying an international monetary system should not consist of any large quantity of long-term placements, and still less be used directly to promote development. The two functions are irreconcilably separate.

5. Triffin's plan has also been criticised on the ground that it would make the I.M.F. into an engine of potentially disastrous international inflation. This danger has perhaps been exaggerated, but I think it is substantial enough to debar adoption of the plan in its present form. The danger could come from any of at least four sources. First are the consequences of the four defects already examined. The consequences relevant here are the potentially inflationary effects, which do not need to be spelled out, of excessive accumulations of specific types of assets that are or that might become inconvertible, illiquid or saleable only at a loss. Second is the fact that the limits Triffin proposes to set on the total volume of I.M.F. deposits are at best loosely defined. Thus at one point he says only that this total is to be " sufficient to preserve an adequate level of international liquidity "; at another, that the I.M.F.'s lending is to be restricted so that it will " increase total world reserves by, let us say, 3 to 5 per cent a year."[2] But the term " adequate " has no very precise meaning (and who is to judge?); and in the absence of foreknowledge of what the total real output of the I.M.F.'s members will be in the future, it is clearly difficult to assert that these or any other fixed rates will be either stabilising, inflationary or even deflationary. Some critics have feared that any such provision would virtually guarantee continuous and perhaps severe international inflation.

Third, even if one had enough faith in the I.M.F. administration to believe that increases in the total of I.M.F. deposits would be kept within sensible limits, this is still only a *total*. If some countries elected to keep their own monetary reserves and effective money supply constant despite current increases in the aggregate of I.M.F. deposits, for example, the expansion of the system as a whole might be concentrated on a few other countries alone, with conceivably disastrous results.

Fourth, except in an extraordinary emergency, the I.M.F. *must* always buy country A's holding of B's currency from A, if A offers them for sale; and

[1] *Gold and the Dollar Crisis*, pp. 117, 118. [2] *Ibid.*, p. 103.

in the ordinary case will pay for B's currency by giving A new I.M.F. deposits (or perhaps gold), unless A is already in debt to the I.M.F. This operation is at the very heart of the proposed new central-banking function of the I.M.F., and is one main way both of maintaining A's liquidity and of temporarily relieving B from pressures that might otherwise imperil B's own currency. But suppose that B had been running a protracted deficit with A and other countries, had not borrowed from the I.M.F. and had hitherto made payment merely by transferring title to some of its own currency to A and the others; and suppose that now A and the others have suddenly become uneasy, and all sell their holdings of B's currency to the I.M.F. in return for new I.M.F. deposits. The total of these deposits will then increase, though the I.M.F. has not made any "direct" loan to B and under Triffin's plan would have no leverage over it. And of course the I.M.F. has no leverage over A or the others. The results could be seriously inflationary. It is true that the nominal total of the reserves of A and the others will not have increased. But these countries may now elect to expand internally on the "safe" basis of their new I.M.F. deposits, whereas they had previously thought B's currency a rather dubious asset, and had hence refrained from such expansion.

The overall conclusion hence seems clear that to prevent serious and perhaps unforeseen inflationary dangers, quite specific restrictions must be placed not only on the I.M.F.'s creation of its own deposits, but also—again—on its total holdings of member currencies, whether acquired by "direct" loans to the member issuing the currency or by purchase from a second member; and that the I.M.F. must have power to enforce the restrictions. Triffin hardly touches on the two latter problems, particularly as concerns inconvertible currencies, except so far as I.M.F. holdings are affected by the granting or repayment of "direct" loans.

6. Finally, what seems to me the most serious defect of all in Triffin's plan is something which others may regard as its saving grace: its treatment of gold. Triffin makes a convincing demonstration of the total inadequacy of the free world's supply of monetary gold, yet he proposes to retain gold as one of the important and normal means for making international settlements; and the adoption of his plan could well increase rather than decrease the demand for gold. Under his plan, some members would have to pay gold to the I.M.F. to cover part of the proposed increases in their subscriptions, and perhaps to meet the requirement that they hold, say, 20% of their own reserves in the form of I.M.F. balances. Thereafter, however, the I.M.F. would have no assurance of ever getting any additional gold except by buying in the open market, or except so far as members might elect to sell gold to it voluntarily. On the other hand, each member would be free to demand conversion into gold of any I.M.F. deposits it held in excess of the proposed minimum of 20% of its own reserves.[1] Hence nothing would explicitly

[1] *Gold and the Dollar Crisis*, pp. 107, 112, 113, 118.

prevent a member from selling as much as it pleased of its reserves held in the form of foreign exchange—which the I.M.F. ordinarily *must* buy, as remarked earlier—in return for new I.M.F. deposits (net, of course, of any debt from the member to the I.M.F.), and then demanding conversion of the excess above the 20% minimum into gold held by the I.M.F. If many members did this the process would quickly exhaust the I.M.F.'s gold, and would wreck the whole mode of operation which Triffin proposes for it.

Triffin himself recognises this possibility, of course, and advances reasons for thinking that it would not actually materialise, but I do not find the reasons convincing.[1] Nor do his proposed remedies—an accelerated "amortisation" of I.M.F. currency holdings (how is it to be enforced?), and various restrictions on the right to convert—seem likely to be very effective unless other and more specific sanctions are also provided against the members whose currencies the I.M.F. is holding in excessive amounts. This is the more true, since a considerable part of the I.M.F.'s currency holdings under the new system would have originated not in "direct" loans to the members issuing the currencies, but in sales of such currencies to the I.M.F. by second parties. Triffin's proposals provide no very specific controls over such sales. Moreover, if a "gold run" on the I.M.F. actually developed, as it easily might in consequence of the process described in the preceding paragraph, under Triffin's plan the I.M.F. might then have no course open except to go into the market itself and buy gold, in order to restore its own gold "reserve" position. But then the I.M.F.'s demand would be, in considerable part if not entirely, a net addition to the more or less continuous market demands of its members, and would intensify rather than ease the general shortage.

III

The difficulties in Triffin's plan which have just been summarised are substantial. Some of them, it is true, could be materially reduced by a series of fairly obvious modifications of the plan itself. I think that even with these modifications, however, neither Triffin's plan nor any of the other proposals for reform that have been advanced to date quite gets to the heart of the matter. A still more fundamental modification of our present arrangements is necessary if the free world's international monetary system is to be put on an enduringly stable basis.

The reason is that the form of gold-exchange system which has been re-established in recent years rests, I think, on a basic contradiction with respect to the role it assigns to gold itself. We now require gold to serve as part or all of the internal central reserves of many free-world countries, including nearly all the larger industralised nations; at the same time we treat gold as the last-resort means for making international payments; and we also insist on using our limited monetary stocks to help satisfy the intermittent but

[1] See especially *Gold and the Dollar Crisis*, p. 112.

sometimes enormous demands of private and governmental gold speculators and hoarders all over the world. Yet as is by now obvious to almost everyone, and as Triffin himself has persuasively argued, the free world's supply of monetary gold is completely inadequate to carry all three of these burdens effectively and at the same time, or even to carry the first two alone, in periods when there are very severe pressures. Nor would the adoption of Triffin's own plan, as shown earlier, really solve the problem with respect to gold; indeed, it might even make the problem worse.

This, then, is the contradiction: we have no way of making the supply equal to the upper reaches of the probable aggregate demand, yet we cling tenaciously to the system. A collapse, in the sense of an enforced devaluation or a suspension of the convertibility of one or more major currencies, is hence always possible. We managed, by a combination of emergency measures and perhaps some good luck, to slide through the crisis of late 1960 and early 1961, but it would be merely self-deluding to regard this crisis as unique. Another one like it, or perhaps something worse, could occur at any time and with little advance warning. Our present system is a moderately good fair-weather craft when managed skilfully, but in storms it leaks badly and could easily founder. No mere patching or caulking will strengthen it sufficiently. It is hence imperative to devise some better set of arrangements, and to do so quickly.

If this basic conclusion is accepted—and I believe it is the only one which is defensible—then we must rebuild part of the system itself. There are, I think, only two major alternatives. First, we can devote all our monetary gold to the effecting of international settlements alone, and deliberately abandon its use as an important internal national reserve. This step, however, would scarify the monetary traditions of the leading countries, hence would probably arouse insuperable opposition, and might not be workable in practical terms. Nor would it alone assure the maintenance of international balance. Or, second, we can do just the opposite. We can devote our monetary gold primarily to the maintenance and expansion of national internal reserves alone, and, for those last-resort international settlements which would otherwise have to be made in gold, use instead something like the new I.M.F. deposit balances which Triffin proposes. These deposit balances, when protected by the additional safeguards described later, will be just as liquid, as generally acceptable and as "safe" as gold, and in most cases will also pay interest to their holders instead of being a non-earning asset. This is the simplest solution and the only one which seems broadly practicable. Eliminating the use of monetary gold to make international settlements in all ordinary circumstances will likewise reduce short-run fluctuations in national gold reserves, and in countries that orient their internal policies on their gold holdings to any substantial degree will thus increase internal economic stability.

This step alone, of course, will likewise not solve the broader problems

of stability and balance at the international level. If the further modifications of our present system and of Triffin's plan which are proposed below are also adopted, however, together with the necessary additional safeguards, I believe a really workable and adequate international monetary system can at last be achieved: that is, a system which can handle every probable future international pressure, of the types which such a system should properly be expected to deal with at all, yet which at the same time need be neither inflationary nor deflationary in its effects. The more important specific provisions required to implement the basic principles here involved are summarised in later sections.

It is true that in the traditional theory of gold-standard central banking international gold flows were assigned a key " barometric " role even when their absolute size was small. If the gold flow was of appreciable size relative to the country's total reserves, an adjustment of the internal currency and banking system was supposed to ensue—especially in the case of gold losses. This adjustment was also supposed to help maintain the " value " of currency. With these considerations in mind, many will now contend that with the recent spread of gold convertibility, these effects of international gold flows are once more an essential part of the process by which overall international balance is maintained, and hence that the use of gold itself to effect net international settlements must be preserved at all costs.

To these contentions there are three answers, each partial but mutually complementary and in combination complete. First, the experience of the inter-war years—the last period of substantial length when any large number of leading countries maintained fairly unrestricted gold convertibility—suggests that the " traditional " rules of positive internal response to gold flows were actually followed less than one-third of the time: the theory does not correspond well to recent practice.[1] Second, however, there is obviously no reason why I.M.F. members should not respond to gains and losses of the proposed new I.M.F. deposits, if they so choose, precisely as traditional theory required them to respond to gold flows. Third, as to the " value " of member currencies, the new I.M.F. deposits will be gold-denominated and kept at par with gold. Hence any member that maintains the stated par value of its currency in terms of I.M.F. deposits (within the permitted limits of variation) will enjoy the same beneficial effects on the *external* value of its currency as those which it now does or could receive from maintaining external convertibility into gold. The *internal* value of any member currency, on the other hand, always has been and will continue to be governed primarily by the actions of the member's own monetary and fiscal authorities alone.

To summarise, in the proposed new system and in all ordinary circumstances the need, and hence the demand, for gold to make international settlements will simply disappear. Its place here will be taken by the new

[1] See the League of Nations study, *International Currency Experience* (1944), pp. 68, 69. The data used, however, relate only to year-to-year changes.

I.M.F. deposits, and the existing monetary gold stocks can be used exclusively for internal reserves.[1]

All this does not mean, however, that the members of the I.M.F. should hereafter use their gold simply to plate their palaces and parliament houses. Gold will continue to serve as a vital internal restraint and regulator for any country that so desires, and as the traditional symbol of financial strength; and each member will be free to increase its stocks by buying from any holder who sells voluntarily. Only what is in effect the present *compulsory* aspect of international gold sales will be removed. Moreover, for a long time to come ordinary prudence will require that the present monetary gold stocks be retained as safety reserves against a possible future liquidation of I.M.F., some other breakdown of the new system or a new war.

IV

Even if the proposed general principles concerning the international use of gold are accepted, this would obviously not be sufficient to define or to establish an adequate new international monetary system. To permit an intelligent appraisal of the probable effects of the adoption of the principles, it is therefore necessary to describe briefly the more important additional provisions which also seem required, in order to ensure the satisfactory operation of the reconstituted international monetary system. So far as these proposed provisions parallel Triffin's, a summary reference will suffice.

1. *Reorganisation of the I.M.F.*

The present I.M.F. should be completely reorganised, along somewhat the same general lines as those proposed by Triffin, though with a good many differences, and should be made into a central bank for its members. The present quota system for regulating loans to members should be abolished. The present guarantee clause protecting I.M.F. holdings of member currencies should be retained.

2. *Transactions in Gold*

As part of the reorganisation, and to implement the general principles proposed in Section III, above, the I.M.F. members should agree that: (i) both the members and the I.M.F. itself are free to buy anywhere any gold which the holder wishes to sell; (ii) no member will request gold in settlement of payments due, either from another member or from the I.M.F.; (iii) the I.M.F. will not request gold from a member, except in connection with the application of the proposed "sanctions" described below; (iv) neither the I.M.F. nor any member will sell gold to any private individual (except for limited industrial purposes) or to a non-member; and (v) the

[1] Nor would the change in the position of gold be revolutionary. Few, if any, major countries to-day allow the internal circulation of gold coin, or pay out gold on demand to private domestic buyers (except for limited industrial purposes); almost none sells to private buyers in other countries, unless in emergencies like 1960–61.

I.M.F. may sell or lend gold voluntarily to a member, and a member may lend or sell gold voluntarily to another member or to the I.M.F. The I.M.F., in particular, should be free to make limited loans or sales of gold to a member for internal stabilisation purposes.[1]

3. *Initial Creation of I.M.F. Deposits; Conversion Rights*

At the date of the inauguration of the new system the I.M.F. will create its own gold-denominated deposit balances in favour of each member, as Triffin proposes, in an amount equal to the member's subscription at that date minus any existing net debt of the member to the I.M.F. Each member will be free to sell, lend or otherwise transfer its I.M.F. deposits to another member. Each member may also use its I.M.F. deposits to buy back its own currency from the I.M.F. No member, however, may demand that the I.M.F. convert any part of its deposits into gold. On the other hand, the I.M.F. *must* always buy a member's holdings of a second member's currency, if requested, in return for I.M.F. deposits (but subject to the limitations on I.M.F. currency holdings described in para. 6, below). The I.M.F. may also convert a member's deposits into the currency of another member, if requested, provided the I.M.F. both holds the second currency and wishes to sell it, but the I.M.F. is not automatically obliged to make such conversions. Should the I.M.F. refuse, the first member is always protected in any event, because each member will have agreed always to accept I.M.F. deposits in payment from another member (para. 4, (i) below). The I.M.F. may also serve as an agent for the exchange of currencies and for the clearing of payments between members.[2] Finally, the deposit liabilities of the I.M.F. will carry interest at the current net I.M.F. earnings rate, except in special circumstances described later. Any increases in I.M.F. deposits after the inaugural date should be limited and controlled as proposed below (para. 5).

4. *I.M.F. Deposits and Member Reserves*

If the proposed new system is to work at all, if international transfers of the ownership of I.M.F. deposits are to take the place now filled by international transfers of gold, and especially if the new I.M.F. is to operate as an international central bank—that is, as an international lender of last resort—then it is obviously necessary that as of the date of inauguration of the new plan, each member of the I.M.F. shall agree to: (i) accept title to I.M.F. deposits, if offered, in *pro tanto* payment of any debt due from another member

[1] It would also be desirable that all members require the sale to them of all private gold stocks (other than industrial) already held within their territories, as the United States did in 1933, but this is not essential.

[2] The problem of the conditions (if any) under which member currencies should be exchangeable for I.M.F. deposits at prices different from par, and the problem of the conversion rights attached to I.M.F. deposits in the event of a subsequent liquidation of the I.M.F. itself, will not be explored here.

or from the I.M.F. itself; and (ii) count I.M.F. deposits it owns as part of its own central monetary reserves, at least to the extent that its aggregate reserve assets would otherwise be insufficient to meet its minimum legal or traditional reserve requirements.[1] If these provisions are agreed to, the I.M.F., even without any further increase in its subscribed resources, should be able to deal with any situation likely to occur within the next several years where any substantial use of I.M.F. funds at all is appropriate, short of a general international collapse.

Triffin would go farther with respect to the second provision, and would *require* members to keep a stated proportion (say 20%) of their internal monetary reserves in the form of I.M.F. deposits. As remarked earlier, however (Section II, 2), such a requirement would both be almost certain to arouse profound opposition, and in what follows will be shown to be unnecessary.

5. *The Subsequent Expansion of I.M.F. Deposits*

After the initial creation of I.M.F. deposits, and assuming no increases in subscriptions, a member may nevertheless increase both its own holdings of such deposits and the overall total in any of three main ways: (i) selling gold voluntarily to the I.M.F.; (ii) selling the currency of another member B to the I.M.F.; or (iii) selling its own currency to the I.M.F.

Turning these transactions around, from the point of view of the I.M.F. the purchase of gold is always desirable, other things equal, and creates no problems. Second, an I.M.F. purchase of member A's currency from A itself, when undertaken at A's own request, is in effect a " direct " loan to A, analogous to direct loans by the I.M.F. under the present system. Such loans should be subject to charges that vary both with the relative size and the duration of the loan, much as at present. They should be freed, however, from the present often-crippling restrictions as to purposes, amounts and timing: subject to the safeguards outlined below, the I.M.F. should have freedom to exercise its own judgment. Here the I.M.F. is in control, and if its management is intelligent, and also follows the guides suggested below, neither overlending nor other major difficulties need arise.[2] Third, however, the situation is quite different when the I.M.F. purchases member B's currency from A. Subject only to the limitations proposed below, the new I.M.F. *must* always make such purchases (see para. 3, above). They are

[1] The present I.M.F. regulations and procedures permit the I.M.F. to act as a central bank only to the extent that it has gold on hand or obtainable, or other currencies which are acceptable to the creditors, and then only to the extent (often severely limited) that the debtor can obtain the necessary initial loan from the I.M.F. itself.

Note that acceptance of the second condition will require new legislation in some countries, notably the United States.

[2] If the I.M.F. buys A's currency at the initiative of the I.M.F. itself, however, this is clearly not a direct loan to A, and no charges should be imposed. But if I.M.F. deposits become generally accepted by members in payment from other members it is in any event unlikely that such purchases will be important.

one of the two main processes through which the I.M.F. can and must serve as the international lender of last resort (the other being "direct" loans to A). These purchases will operate both to restore A's liquidity and to relieve the current pressure on B; in effect, they temporarily substitute the obligations of the I.M.F. to member A for those of member B. Looked at from the other side, however, by buying B's currency the I.M.F. is in effect making an "indirect" loan to B. But under the provisions thus far considered the I.M.F. has *no* way of bringing any controlling pressure to bear on B. In entirely conceivable circumstances, therefore, continued I.M.F. purchases of B's currency through this procedure could at one extreme threaten a serious and perhaps indefinite inflation of I.M.F. deposits; and at the other extreme might, by loading the I.M.F. with too large a volume of assets of uncertain value, impair or even destroy the current acceptability of its own deposits.[1] It is therefore essential both to set limits of some sort on the I.M.F.'s holdings of any member's currency and to give the I.M.F. effective tools or sanctions with which to enforce such limits. The following provisions are suggested, in summary outline.

6. *Limits on I.M.F. Holdings of Member Currencies*

It is necessary to distinguish between convertible and inconvertible currencies. (i) In the first year or two after the inauguration of the new system, the I.M.F.'s *total* holdings of either group of currencies may be allowed to increase temporarily somewhat above the volume created initially (para. 3, above), if necessary to meet possible future pressures, but not ordinarily by more than say 10%. This will permit a much greater expansion in absolute terms of convertible-currency holdings, of course, than of inconvertible. (ii) The limits on temporary increases for any *one* currency should be substantially higher, again to meet possible future pressures: say 20% instead of 10, provided that the total increase for the relevant group of currencies as a whole is still not exceeded. (iii) The I.M.F. should have power to exceed any of these limits temporarily by, say, another 10% in severe emergencies. (iv) If the total monetary reserves of a member A which holds I.M.F. deposits exceed, say, 30% of A's relevant demand liabilities, the I.M.F. should have power to require A to repurchase with its I.M.F. deposits any I.M.F. holdings of A's currency, until the latter holdings are reduced to zero or the suggested reserve ratio is reached.

(v) Triffin has also proposed an automatic further increase in I.M.F. deposits, at, say, 3–5% per year on the average. This would in general, of course, also increase I.M.F. holdings of member currencies or securities. It

[1] For reasons given near the beginning of Section V, below, neither the solvency nor the liquidity of the reorganised I.M.F.—in the sense of its ability to pay all its deposit liabilities in full and promptly—can ever be impaired in actual fact. General uneasiness about the value or the salability of a substantial part of the I.M.F.'s assets, however, might nevertheless make members hesitate to accept I.M.F. deposits in payment—even though such hesitation would really be "irrational."

has not been clearly established, however, that growth either in a member's real output or in the real or money volume of its international trade requires a corresponding increase in its international monetary reserves. Such reserves are required only to meet disequilibria in its balance of payments, not to carry the total volume of payments itself. With improved techniques for maintaining internal and external balance, and with a more powerful will to use them, the need for international reserves actually held may even decline. What is essential, rather, is to provide for the *availability* of additional reserves, on a temporary basis, to meet unusual pressures of those types for which the use of such reserves is appropriate. The provisions outlined above will ensure a substantial expansion of reserve availabilities, surely enough for some years, and until more evidence is at hand it would not be advisable to prescribe automatic increases in reserves actually held—which might prove merely inflationary.[1]

7. Sanctions

To enforce the limits just proposed the I.M.F. should be given new powers, additional to those which it now has and will have over " direct " loans, to enable it to control " indirect " loans as well. Whenever the I.M.F. feels that its holdings of a member's currency, from whatever source derived, are " excessive " in the sense of rapidly approaching or passing beyond limits such as those just outlined, it should have powers, which it should be free to use at discretion and in any order, to: (i) consult the member concerned, and recommend measures which the member itself should take; (ii) suspend payment of interest on I.M.F. deposits held by the member; (iii) impose charges on *any* I.M.F. holdings of the member's currency, as is now done with " direct " loans; (iv) require the member to repurchase, either with gold or with another currency acceptable to the I.M.F., " excess " I.M.F. holdings of the member's currency[2]; (v) declare an embargo on the member's currency, and refuse to accept it for any purpose, until the situation has been corrected; (vi) sell part or all of the I.M.F.'s holdings of the currency in the open market for what it will bring; and (vii) expel the member from the I.M.F. Any one of the last three steps may also force a devaluation of the member's currency, but the devaluation will then occur in such circumstances that it is unlikely to spread in a chain reaction to other members—who can in any event be given help if adversely affected.

It may also be desirable to invoke sanctions such as (i) through (iv) above

[1] Also see the observations on the relations between international balance and liquidity, in somewhat the same vein, in the Radcliffe *Report* (*op. cit.*), especially paras. 679 f.

[2] This step is, of course, much the same as Triffin's proposal for " extraordinary amortisation " (*ibid.*, p. 112). But the settings and motivations are somewhat different in the two cases. In Triffin's system the I.M.F. could itself be required to convert part of its deposit liabilities into gold, under specific conditions, and hence might be compelled to demand such " amortisation " merely to protect its own gold reserves. Under my proposals these latter things would not be true. The I.M.F. could hence concentrate solely on the best methods of dealing with the problems of the particular member or members whose currencies it held in " excessive " quantities.

against a member which has a seriously excessive international *creditor* position; and the I.M.F. should have power, as proposed in para. 6 (iv), above, to compel such a member to reduce its holdings of I.M.F. deposits.

8. *Investment of I.M.F. Assets*

The I.M.F. should *not* make investments designed to promote the "development" of a particular country directly; the latter function belongs elsewhere. If its holdings of a member's currency are in excess of the I.M.F.'s own current requirements, however, the I.M.F. should be free to invest the excess in the member's government or government-guaranteed obligations (with the member's consent). Such obligations should be short-term or not far from maturity, should be protected by the same guarantee against devaluation as the I.M.F.'s currency holdings, and should be included when the I.M.F. determines the limits on its holdings of the member's currency (para. 6, above). The I.M.F. should also have power to invest limited sums in the obligations of an approved inter-governmental agency, if the obligations are payable in a convertible currency and are subject to the provisos outlined in the preceding sentence—as if they were in fact obligations of the government issuing the currency in which they are payable.

9. *Special Provisions for Primary-product Exporters*

Many of the economically less-advanced countries that depend on exports of one or a few primary products face from time to time, as is familiar (see Section II, (1), above), severe balance-of-payments pressures that are substantially different both in their origins and often in their effects from those typically encountered by the more highly industrialised nations. So far as such pressures originate in overproduction, there is little in the strictly monetary field that other countries can or should try to do: measures of other sorts, perhaps including medium- and longer-term loans, would be more appropriate. When the pressures arise primarily from a decline in export proceeds which is itself due to a cyclical recession in the industrialised importing countries, however, action by the international monetary authorities is both possible and feasible.

Even in the latter situation it would be unwise for the I.M.F. itself to provide more than very limited and temporary assistance; otherwise an unmanageably large proportion of its own total resources could quickly become committed to illiquid situations. A solution can be found, however, by utilising a modification of a plan proposed by a United Nations Committee of Experts in 1949.[1] Under the conditions prescribed in the Committee plan, and at the request of the I.M.F., the principal importers A of mem-

[1] *National and International Measures for Full Employment* (United Nations, 1949: A Report by a Committee of Experts). The plan is commonly attributed to Mr. Kaldor, who was a member of the Committee.

ber B's primary exports to the group A would make interest-free loans of their own currencies to the I.M.F. (*not* to B), up to, say, perhaps 50% or more of any decline in B's average exports to them that was due to recession within their own (A's) economies. The I.M.F. would then create an equivalent amount of its own deposit balances, and would lend them (also interest-free) to B against the security of B's own currency.[1] Member B would then be able to maintain much of its own imports—thus also helping to reduce and perhaps even reverse the recession in the industrial countries that were the original lenders. The bigger the loans, the greater the probable effect. Repayment of the I.M.F. loans should, of course, be a first charge on any subsequent increase in B's export proceeds above some stated figure. The I.M.F. should repay its own creditors A as it is itself repaid. The other necessary safeguards are largely self-evident, and need not be spelled out.[2]

The interposition of the I.M.F. in the loan operation, instead of having the A group lend directly to B, seems desirable in order to provide unbiased determinations of times and amounts and an impartial agency for enforcing later repayment. Lending I.M.F. deposits to B is preferable both because these deposits will be universally acceptable in payment for B's own subsequent imports, whereas some of the currencies of the importing group A might not be, and because the group A will in general be more willing to lend to the I.M.F. than to B.

V

If the I.M.F. is reorganised and is given the essential additional safeguards proposed above, and if the gold provisions are agreed to, the liquidity and general soundness of the I.M.F. will be beyond question, even if no further increases are made in its subscriptions. Suppose, for example, that the reorganisation had been effected on January 31, 1961, and that each member had been given a new I.M.F. deposit balance equal to its total subscription at that date, minus any net claim of the I.M.F. on it—as proposed above. The I.M.F. itself would then have had deposit liabilities of roughly $14 billion. Its assets would have consisted of $2·4 billion of gold,

[1] Such increases in I.M.F. holdings of A and B currencies should not, of course, be counted in computing the limits proposed in Section IV–6, above.

[2] This type of arrangement could be set up by a once-for-all agreement (with stated maximum limits) between the I.M.F. and the central banks of the larger relevant importing members, and could be put into operation from time to time as required. Hence new legislative authority would not be required each time. The increases in the I.M.F.'s holdings of the currencies involved should not, of course, be counted in applying the limits on currency holdings proposed in para. 6, above.

This arrangement also seems both more workable and more likely to be accepted than the proposal for a "development insurance fund" recently made by another United Nations group (*International Financial News Survey*, April 14, 1961). I have not yet seen the document in question, but the plan appears to contemplate the inclusion of the industrial countries as well, and to apply to *all* exports, not only primary products.

The arrangement proposed above obviously offers no solution, however, for the problems of underdeveloped countries that are *chronically* in need of much larger reserves.

$7·5 billion of convertible currencies (including gold-account investments of $800 million), $4·1 billion of inconvertible currencies and roughly $700 million of other assets—a total of $14·7 billion. The ratio of gold to deposits would have been 17%; of gold plus convertible currencies to deposits, 71%. The I.M.F. would hence have been both highly liquid and on almost any definition "sound."[1]

If thus reorganised, and even without any further increases in subscriptions, the resources of the I.M.F. should be more than sufficient for some years to come. It should be able to deal effectively with every probable future situation short of a general international collapse in which any substantial use of I.M.F. funds at all is appropriate, provided only that the members involved on *both* sides of a payments-pressure situation also adopt appropriate internal policies. The I.M.F. should even be able to combat "hot money" flows successfully, except those due to political fear, since its intervention will in general reverse the speculative expectations which originally induced the flows themselves.[2]

Moreover, the I.M.F. as thus reorganised can never become illiquid, in the sense of becoming unable to meet its deposit obligations promptly. A member wishing to withdraw its I.M.F. deposits cannot convert them into gold (unless it were quitting the I.M.F. entirely, when it would receive some *pro rata* share of I.M.F. gold). The member can only convert its deposits into its own currency, if the I.M.F. holds that currency; or, up to the amount that the I.M.F. is able and willing to sell, into the currency of another member (see Section IV, 3, above; but of course the member can always offer its I.M.F. deposits for sale to another member). Such conversions of deposits will reduce equally both the assets and the liabilities of the I.M.F., but will not impair its liquidity as just indirectly defined. Nor would a member ordinarily have any reason on balance-of-payments grounds to demand conversion into a second member's currency anyway: the latter currency would be needed only to make payments to the second or to another member, and

[1] Any increase in subscriptions would now presumably increase the proportion of convertible currencies, and might also increase the quantity of gold held.

Triffin's proposals for inaugurating and expanding the I.M.F. (*op. cit.*, pp. 107–10) are not likely to be accepted in their present form because they would require large gold payments from some countries, especially the United States. Under the alternative proposals made above (Section IV, 2), the I.M.F. would not ordinarily pay out gold at all, and hence would not need any additions to its stock. If subscriptions are later increased, I suggest that they be paid in as follows: (i) gold in excess of, say, 25% of the relevant liabilities of the member's central bank; (ii) convertible currencies up to, say, 50% of the member's "official" holdings (but minus any payments in gold); and (iii) the balance in the member's own currency.

[2] Here the procedure proposed by Dr. Bernstein (*loc. cit.*), under which the I.M.F. would issue its own debentures and use them as security to borrow gold or the debtor's currency from the member receiving the hot money, would also be most helpful. In a sense, this would temporarily reverse the flow. But the procedure is not powerful enough to be the chief reliance in times of major stress (in itself, it puts no pressure on the debtor; and some creditors might refuse to lend, as Professor Kenen has remarked in an unpublished manuscript which he kindly showed me), and it is rather clumsy. It is hence not an adequate alternative to the creation of a true international central bank.

all members will already be obligated to accept I.M.F. deposits for such purposes (see Section IV, 4, above).[1]

Nor can the reorganised I.M.F. ever become insolvent, in the sense of becoming unable to meet its deposits obligations in full, for essentially the same reasons. It is true that if a member became uneasy about the value of the I.M.F.'s assets it might refuse to accept I.M.F. deposits—contrary to its agreement. But such a refusal would in actuality be irrational, for as just shown, the I.M.F. will always be able to " convert " its deposits in full. Only if the I.M.F. were to be completely liquidated would a possible decline in the value of its assets below cost be a matter for legitimate concern.

The real dangers to which the reorganised I.M.F. will be exposed are different. First, there are various types of balance-of-payments pressures which, however severe they may be, the I.M.F. cannot and should not try to deal with (see Section II, 1, above). If it nevertheless yields to temptation or the entreaties of its members, it will risk its own destruction. Second, it is also entirely possible that through bad judgment on the part of its managers the I.M.F.'s operations will become an engine of international inflation, despite the safeguards proposed at earlier points. This would be highly undesirable in itself, but would still not make the new I.M.F. either insolvent or even illiquid. Moreover—though the thought may not be too comforting—the same risk of inflation attaches to the operation of *any* central bank or government, neither of which can ever be bankrupted involuntarily. One is always compelled to rely to some extent on the integrity, judgment and will-power of competent administrators.

VI

The preceding analysis has sought to establish three main points. First, an extensive and even drastic reorganisation of our present international monetary arrangements is both imperative and urgent. Second, while the major objectives of Triffin's plan—the most comprehensive hitherto proposed—are the right ones as far as they go, the plan itself both contains serious internal defects and, with respect to gold, does not go to the real heart of the problem. Third, the adoption of the alternative proposals made above—especially those concerning gold, the specific limits and sanctions on I.M.F. currency holdings, member reserves, primary-product exporters, the divorcement of I.M.F. operations from development programmes, and these and other arrangements permanently protecting the liquidity and the solvency of the I.M.F.—will substantially cure these defects, and will permit the establishment of a really effective and adequate international monetary system.

[1] Had the I.M.F. been reorganised on January 31, 1961 in the manner proposed above, and had all members then having convertible currencies withdrawn their deposits immediately after the reorganisation, the I.M.F. could still have paid them off in such currencies or in gold. Thereafter the I.M.F. would have been protected from all dangers on this score by the provisions for reorganisation themselves, as outlined above, and by the proposed measures relating to gold.

Recognition of the validity of the first point is becoming increasingly widespread. On the other hand, the choice as between Triffin's plan for the reorganisation itself, the alternative plan proposed above and other present or possible future plans must obviously wait on further discussion and, eventually, on intergovernmental action.

Meanwhile, however, another and quite recent type of difficulty, which is as much political as economic, is threatening to block any action at all. This difficulty really has three aspects, though there is common ground among all three. First, the United Kingdom is understandably concerned about the effects of *any* general monetary reorganisation on the interrelated financial, commercial and political complexes of the Commonwealth and the other sterling area countries. Second, in the leading European countries as a whole there is apparently an increasing disposition to urge that participation in any new international central bank be confined to the countries now possessing the major trading currencies—which is really a revival of Professor J. H. Williams's "key currency" idea—and thus to make the new I.M.F. central bank a rich man's club alone. Finally, many countries all over the world are said to be increasingly uncomfortable over the dominating role which the United States would presumably play in the new institution. The United States subscription, and hence its vote if votes are proportional to subscriptions alone, would far exceed any other nation's.

These difficulties are not imaginary, and they could become serious or even fatal obstacles to any major reorganisation. Although they cannot be examined here in detail, one or two comments may be suggested. First, there is obviously no *a priori* logical barrier to the incorporation into the proposed new I.M.F. either of the sterling area or of more specifically localised regional arrangements, and without loss of that identity which is both so highly prized politically and often so valuable in practical terms. Second, if there is enough goodwill on both sides the voting-power problem should be negotiable, and capable of a reasonable solution. Third, however, complete exclusion of the smaller countries from the new I.M.F. would be both awkward with respect to the normal operations of the I.M.F. and probably disastrous politically. It would be at once counter to the real spirit of the United Nations, and a wonderful weapon for the Communist bloc.

But whatever the specific solutions that may be found for these very substantial problems, the one thing which is imperative is that serious work should begin promptly, at both governmental and intergovernmental levels, to develop and adopt an effective and adequate plan for the reorganisation itself. Time may not wait much longer.

JAMES W. ANGELL

Columbia University,
New York 27.

ON THE MEASUREMENT OF TECHNOLOGICAL CHANGE[1]

An historical play about growth models might consist of three acts: in the first, labour, supported by an invisible chorus of capital, land and technological progress, holds the stage; in the second, capital and labour exchange roles. Finally, in the third act now being performed, labour, capital (and sometimes land) and technological progress appear on the stage together, with the first two (or three) reading from the script while technological progress holds forth the rest of the time.[2] So treated, this newcomer has done remarkably well. According to several recent American studies, it has been responsible for some 80–90% of the growth of output per unit of labour, the remaining 10–20% being all that capital (and land) could claim. True enough, this large contribution has not been made by technological progress alone; a whole group of actors consisting of technological progress in the narrow sense, economies of scale, external economies, improved health, education and skill of the labour force, better management, changes in product mix and many others have been involved. For this reason, the names given to this group have ranged from " output per unit of input," " efficiency index," [3] " total factor productivity," " change in productive efficiency," [4] " technical change," [5] all the way to " measure of our ignorance." [6] To emphasise the nature of this concept and to avoid loaded words, let us call it the " Residual." [7]

[1] Without sharing my errors with them, I am grateful for many helpful comments to A. Bergson, S. Chakravarty, S. Clemhout, P. Dhrymes, R. Eckaus, E. Kuh, L. Lave, A. Ølgaard, J. Schmookler, R. Solow and H. Wan.

[2] A sample from the first act is a study by Everett E. Hagen and Nora B. Kirkpatrick, " The National Output at Full Employment in 1950," *The American Economic Review*, Vol. XXXIV, September 1944, pp. 472–500, while the second act features the so-called Harrod–Domar models with all their ancestors, relations and offspring united by the use of one or more, usually constant, capital coefficients.

What about an epilogue banishing labour and capital into the chorus and leaving technological progress in sole possession of the stage?

[3] Jacob Schmookler, " The Changing Efficiency of the American Economy: 1869–1938," *The Review of Economics and Statistics*, Vol. XXXIV, August 1952, pp. 214–31.

[4] John W. Kendrick, " Productivity Trends: Capital and Labor," *The Review of Economics and Statistics*, Vol. XXXVII, August 1956, pp. 248–57, reprinted as National Bureau of Economic Research, Occasional Paper 53 (New York, 1956), to which further references are made. I am grateful to Mr. Kendrick and the N.B.E.R. for giving me a manuscript of his forthcoming book on *Productivity Trends in the United States*.

[5] Robert M. Solow, " Technical Change and the Aggregate Production Function," *The Review of Economics and Statistics*, Vol. XXXIX, August 1957, pp. 312–20.

[6] Moses Abramovitz, " Resource and Output Trends in the United States since 1870," *American Economic Review, Papers and Proceedings*, Vol. XLVI, May 1956, pp. 5–23, reprinted as National Bureau of Economic Research, Occasional Paper 52 (New York, 1956).

[7] It is indeed estimated as a residual after the contribution of other inputs to the growth of output has been accounted for. Many a time it will be tempting, however, to call it " an index of technological change."

So far I have seen essentially four methods of expressing the Residual: (1) it is defined as the difference between the values of outputs and inputs in constant prices by Hiram S. Davis;[1] (2) it is the ratio between arithmetic indexes of output and of input, in the works of Schmookler, Abramovitz and Kendrick, which I shall call the SAK method; (3) the Residual is the ratio between an aggregate arithmetic index of output and inputs embodied in a linear homogeneous production function—the work of Solow; (4) finally, the Residual, or more correctly, its relative percentage rate of growth, is the weighted arithmetic average of relative changes in input coefficients between two points of time, derived by Leontief from his input–output studies.[2] This is a very rough and not a chronological description of the several methods, which differ in many other respects as well.[3] When applied to large, slowly growing aggregates they are likely to yield similar results, with or without my suggestions. But in rapidly growing industries and sectors and in problems involving integration and aggregation of industries both the differences and the arguments about them may be more significant.

My original aim was to argue about all four methods. But space has admitted only two of them: the Solow and the Leontief, plus the geometric index on which both are based.

I. The Solow Method

List of Symbols (in Order of Appearance)

Y = index of output in physical units
A = Residual (sometimes interpreted as an index of technological change in the broad sense)
t = time
L = index of labour input in physical units
K = index of capital input in physical units
α = ratio of the value of labour input to the value of output in the base period
β = ratio of the value of capital input to the value of output in the base period
$\dot{Y}, \dot{A}, \dot{L}, \dot{K}$ = relative (percentage) rates of change of the respective variables per unit of time.

[1] Hiram S. Davis, *Productivity Accounting* (Philadelphia, 1955). He also uses the SAK method (see below).

[2] Wassily Leontief *et. al.*, *Studies in the Structure of the American Economy* (New York, 1953), pp. 27–35.

[3] Nor is it a complete list of the many works in the field. For a brief historical note see Kendrick *op. cit.*, pp. 2–3. The SAK method was recently used by W. B. Reddaway and A. D. Smith, "Progress in British Manufacturing Industries in the Period 1948–1954," Economic Journal, Vol. LXX, March 1960, pp. 17–37; the Solow method by Olavi Niitamo, "The Development of Productivity in Finnish Industry 1925–1952," *Productivity Measurement Review*, No. 15 (November 1958), pp. 30–41; Odd Aukrust, "Investment and Economic Growth," *Productivity Measurement Review*, No. 16, February 1959, pp. 35–53; and by Benton F. Massell, "Capital Formation and Technological Change in United States Manufacturing," *The Review of Economics and Statistics*, Vol. XLII, May 1960, pp. 182–8. Solow himself was anticipated by J. Tinbergen, "Zur Theorie der langfristigen Wirtschaftsentwicklung," *Weltwirtschaftliches Archiv*, Vol. LV, May 1942, pp. 511–49, translated as "On the Theory of Trend Movements," *Selected Papers* (Amsterdam ,1959), pp. 182–221.

Assuming that technical change, " a shorthand expression for *any kind of shift* in the production function," [1] is neutral, Solow starts with the production equation

$$Y = A(t)f(L, K) \tag{1.1}$$

and with two traditional assumptions: (1) that $f(L, K)$ is linear and homogeneous, and (2) that factor prices equal their respective marginal products, he obtains the simple, and valuable for us, result that

$$\dot{Y} = \dot{A} + \alpha\dot{L} + \beta\dot{K} \tag{1.2}$$

and hence that

$$\dot{A} = \dot{Y} - \alpha\dot{L} - \beta\dot{K} \tag{1.3}$$

with $\alpha + \beta = 1$.[2] Since $\dot{Y}$, $\dot{L}$, $\dot{K}$, α and β can be derived empirically, $\dot{A}$, the rate of growth of the Residual, can be estimated.

So far the exact form of the production function has not been specified, but should it be of the Cobb–Douglas type,

$$Y = AL^{\alpha}K^{\beta} \tag{1.4}$$

with constant α and β, and $\alpha + \beta = 1$, (1.2) and (1.3) can be obtained more directly by taking logarithms of both sides of (1.4) and differentiating them with respect to time. For reasons explained below and because, a humble mathematician, I am more comfortable with a specific function, the Cobb–Douglas will be used here. Actually the integration of the expression (1.2) shows that any linear homogeneous production function with constant factor shares is of the Cobb–Douglas type.

A simple numerical example will help to understand why the contribution of the Residual is so large relative to that of capital. Let us take $\dot{L} = 1{\cdot}5\%$ per year, $\dot{K} = 3{\cdot}0\%$, while α and β are 75 and 25% respectively, as suggested more or less by the aggregate American data. In the absence of the Residual, $\dot{Y}$ would be a weighted mean of $\dot{L}$ and $\dot{K}$, and since labour's weight is much larger than capital's, $\dot{Y}$ would be much closer to $\dot{L}$ than to $\dot{K}$, equalling in our example 1·9%. Actually $\dot{Y}$ has approximated 3·5%, and the difference between 3·5 and 1·9% yields an $\dot{A}$ of 1·6%. The rate of growth of output per unit of labour input being 2% (3·5–1·5), the ratio of $\dot{A}$ to the latter is 80%, a figure not far from Solow's 87%. With a weight of only 25% (more or less) there is not much that capital can do. Even if $\dot{K}$ should double, other variables remaining the same, $\dot{Y}$ would increase only from 3·5 to 4·2%,

[1] Solow, *op. cit.*, p. 312.

[2] Differentiating (1.1) with respect to time, he obtains

$$\frac{dY}{dt} = A\left(\frac{\partial f}{\partial L}\frac{dL}{dt} + \frac{\partial f}{\partial K}\frac{dK}{dt}\right) + f\frac{dA}{dt} \tag{1.3a}$$

The division of both sides by $Y = A(t)f(L, K)$ and the substitution of $\alpha = A\frac{\partial}{\partial L}\cdot\frac{L}{Y}$ and $\beta = A\frac{\partial f}{\partial K}\cdot\frac{K}{Y}$ gives (1.2).

less than a modest reward for a major effort. A doubling of $\bar{A}$ (I almost said, " of the rate of technological progress ") would help much more.

Before we order our economic developers to substitute technological progress for capital accumulation, two attributes of the model should be recalled: (1) by its very nature, A is a Residual. It absorbs, like a sponge, all increases in output not accounted for by the growth of explicitly recognised inputs. It is not the input into technological progress even in the broadest sense; we do not as yet know the nature and the magnitude of inputs which would result in a given increment in A. (2) The magnitude of A is completely divorced from investment and capital accumulation. Capital merely accumulates; it does not change its quality, form or composition; *it does not serve as the instrument for the introduction of technical change into the productive process.* It is this kind of capital accumulation (wooden ploughs piled up on the top of existing wooden ploughs) that contributes so little to economic growth.[1]

Let us now compare the present model with the so-called Harrod–Domar variety based on a constant K/Y ratio or $\bar{K} = \bar{Y}$.[2] With this condition, (1.3) is transformed into

$$\frac{\bar{A}}{\bar{Y} - L} = \alpha \tag{1.5}$$

Thus the fraction of the rate of growth per unit of labour accounted for by the Residual (the rest being claimed by capital) equals labour's relative share in the output. Since this share is supposed to be rather large—from two-thirds to three-quarters and even higher—and the aggregate average capital coefficient is thought not to increase too rapidly, if at all, the Residual is bound to be a large fraction of the rate of growth of output per unit of labour. A falling capital coefficient makes this fraction even larger than α. In Solow's study the implied capital coefficient fell from 3·3 in 1909 to 2·1 in 1949, while α hovered around 67%, resulting in an estimate of $\frac{\bar{A}}{\bar{Y} - L}$ of some 87%. The authors of constant capital coefficient models did assume *some* technological progress, but they hardly suspected how very specific their assumption could become. The ease with which their secret has been revealed takes my breath away, and now we can all expect that the estimate

[1] Needless to add, such a complete isolation of capital formation from technological progress is empirically impossible, and to the extent that our deflation methods of capital formation do not fully account for quality changes, $\bar{K}$ may be understated and $\bar{A}$ overstated. The same may be true of labour as well. It should be recalled, however, that we deal here not with the absolute magnitudes of inputs but with their relative rates of growth. A constant relative bias in estimating K or L will not affect the results.

It is not implied here that these characteristics of the Residual are news. On the contrary, Solow is well aware of them. See, for instance, his paper on " Investment and Technical Progress," *Mathematical Methods in the Social Sciences*, edited by Kenneth J. Arrow, Samuel Karlin and Patrick Suppes (Stanford, California, 1960), pp. 89–104. This paper also contains additional sources on the subject.

[2] Since the Cobb–Douglas function allows substitution between labour and capital, a constant capital coefficient should be interpreted in an historical rather than a technical sense.

of $\frac{\bar{A}}{\bar{Y}-\bar{L}}$ of some 75% will soon occupy at least as hallowed a place in our economic mythology as a stable capital coefficient in the vicinity of 3![1]

But to return to the Cobb–Douglas with constant $\alpha + \beta = 1$. Another look at $L^{\alpha}K^{\beta}$ identifies it as the good old weighted geometric mean, and if both L and K are index numbers with a common base, which they should properly be, then $L^{\alpha}K^{\beta}$ is a geometric index of inputs, each weighted by its share in output in the base period. If output consists of several products, then common sense and consistency in aggregation calls for making Y their weighted geometric index as well, and the Residual—the ratio between two such indexes. But it would be a bit strange to compare a geometric index of inputs with an arithmetic index of outputs, such as gross or net national product or some part of it, as has been repeatedly done, even though the numerical error in the aggregate was not large.[2]

Since we do not need here the properties of $L^{\alpha}K^{\beta}$ as a production function (elasticities of substitution, for instance), we shall treat this expression as a geometric index of inputs and claim the freedom traditionally afforded index makers to cut hard knots (such as the choice of weights) with eyes half closed. Like any index number, ours should be tailored for a specific purpose: to help in the understanding of growth processes of industries, sectors and economies. We should be free to take the economy apart, to aggregate one industry with another, to integrate final products with their inputs, and to reassemble the economy once more and possibly over different time units without affecting the magnitude of the Residual. The latter's rate of growth

[1] A numerical table of $\frac{\bar{A}}{\bar{Y}-\bar{L}}$ for given values of the other variables can be easily constructed. Imagine the awe inspired by an economic adviser who, within an hour of his arrival in a country new to him, will be able to tell the local experts what the approximate magnitude of their $\frac{\bar{A}}{\bar{Y}-\bar{L}}$ has been!

[2] I do not mean to imply that because a Cobb–Douglas function is geometric no arithmetic index of outputs produced with such functions should be made. Only that some results will not be invariant to aggregation and integration of industries. This need not deprive the arithmetic index of other desirable properties. For one, arithmetic indexes are much easier to construct because economic data are gathered in an arithmetic and not a geometric form (the components being added up rather than multiplied). Secondly, if given resources can produce outputs X_1 and X_2 in varying proportions, the weighting of each X by some base period price p and the maximisation of the function $p_1X_1 + p_2X_2$ is intuitively sensible, as is the familiar result $dX_1/dX_2 = -p_2/p_1$. In a geometric index the absolute magnitudes are replaced by their logarithms, and the prices by some shares v_1 and v_2. The maximisation of $v_1 \log X_1 + v_2 \log X_2$, with a given transformation function between $\log X_1$ and $\log X_2$ gives $\frac{dX_1}{X_1}\Big/\frac{dX_2}{X_2} = -v_2/v_1$, a meaningful expression, yet not as intuitively understandable as the other one.

On the consistency in aggregation, see two papers by Lawrence R. Klein: "Macroeconomics and the Theory of Rational Behavior," *Econometrica*, Vol. XIV, April 1946, pp. 93–108, and "Remarks on the Theory of Aggregation," *ibid.*, October 1946, pp. 303–12, reprinted as Cowles Commission Papers, New Series, Nos. 14 and 19. Judging from Solow's paper on "The Production Function and the Theory of Capital," *The Review of Economic Studies*, Vol. XXIII, 1955–56, pp. 101–8, the aggregation problem has not escaped him.

should, therefore, be invariant to the degree of aggregation and integration and to the choice of the time unit, be it a year or a decade.

II. The Geometric Index Method

List of Additional Symbols

R = index of raw material input in physical units
$\bar{R}$ = relative (percentage) rate of change of R per unit of time
γ = ratio of the value of raw material input to the value of output in the base period
v = weight (explained in the text)
y, l, k, r = values of the respective variables in the base period
Y_{ij} = index of output of the ith industry used by the jth industry as an input
y_{ij} = value of Y_{ij} in the base period

Several less frequently used symbols are explained when introduced.

A subscript indicates that the variable belongs to a particular industry rather than to the whole sector.

A given industrial process with a single output and a number of inputs is expressed by the production equation

$$(2.1) \qquad Y = AL_1^{\alpha_1}L_2^{\alpha_2} \ldots L_n^{\alpha_n}K_1^{\beta_1}K_2^{\beta_2} \ldots K_m^{\beta_m}R_1^{\gamma_1}R_2^{\gamma_2} \ldots R_s^{\gamma_s}$$

where by *Rule I* each exponent is the ratio of the value of the corresponding input to the value of the output in some base period, and the sum of these constant exponents equals one. With prices and quantities not infrequently moving in opposite directions, the system of weights given by this Rule may receive a passing mark, but its arbitrary nature, like that of any index number system of weights, should not be forgotten.[1]

Ideally, the output and each input is an index of physical units, such as tons, man-hours, machine-hours, kilowatt-hours, etc., with a common base period. No distinct inputs are merged unless they are always proportional to each other (though sub-indexes can be made). Otherwise even two machines, similar in all respects but of different vintage, are kept apart, and so are different kinds of labour and of raw materials. Since most available statistics, even if detailed, are arithmetic aggregates (obtained by *adding* and not by *multiplying* their components), our ideal requirements will be far from satisfied, and we are likely to end up with a geometric mean of arithmetic indexes supported by the hope that, the same procedure being used on the input and output sides (see Part III, Section 4), the resulting errors will cancel out, at least to some extent.

Of the several kinds of input, raw materials look most tractable because they are usually puchased outside (of the firm) in ordinary physical units.[2]

[1] For additional implications of Rule I see Part III, Section I. Once the physical series of inputs and outputs have been obtained—the major part of the job—the remaining computations are sufficiently simple to allow experiments with different sets of weights and with periodic changes in weights (a chain index).

[2] Raw materials used in a single industrial process may be outputs of another process in the same firm. If detailed data are not available it is still possible to estimate the Residual for the whole firm by using the integration and aggregation procedures discussed below.

So is direct labour paid by the hour, except for overtime (perhaps this should be treated as a separate kind of labour) and fringe benefits. Managerial labour input is harder to measure (what do hours mean here?), and its compensation (which includes bonuses, stock options and the like) is complex. In non-incorporated business there is the perennial problem of the division of income between owner's wages and profits. The worst problems are created by capital input and its compensation. Ideally, each machine and building should be rented and paid for by the hour of actual use. In reality capital is usually owned, recorded in value terms and assigned not costs but profits (including interest), not necessarily tied to its use. So we may have to get along with value estimates of large sets of capital assets in some constant prices, with a possible adjustment for under-utilisation, while profits are somehow allocated among the different kinds of assets to set their respective weights.[1] But what about selling and advertising expenses, taxes and depreciation charges? The first two should probably be treated like any other inputs, unless the study is concerned with the production activities of the firm only.[2] Depreciation will be discussed below (see pp. 716–17, 722–3, 726), while for taxes no reasonable treatment is in sight because of the impossibility of identifying the input of government services into a given firm or industry. Perhaps corporate income taxes should be retained in gross profits while all other taxes are simply excluded from the value of output in the base period, though different procedures could be defended just as well.[3]

Assuming that all these qualifications (and yet more to come in Part III) do not destroy the reader's curiosity completely, we shall now consider the following problems: (1) the treatment of raw materials, and (2) of depreciation; then (3) the more interesting questions of aggregation and integration among firms, industries and economic sectors.

[1] Whether capital, and also labour and other inputs, should be adjusted for under-utilisation depends on the meaning to be attached to the Residual. It can reflect the efficiency of the utilisation of all resources available or only those actually used. For a firm or an industry the second meaning makes more sense, but for the economy as a whole, and particularly for international comparisons, such as between the United States and the U.S.S.R., both meanings are of interest. The rate of growth of the Residual will not reflect the presence of unemployed resources, however, if their fraction of total resources remains unchanged.

This allocation of profit really refers to fixed capital, raw materials being treated as separate flow inputs. But it seems proper to assign a part of the profit to inventories of raw materials and finished goods as the necessary cost of holding them. In wholesale and retail trade this adjustment may be quite important. Needless to say, profits in the base period should be as "normal" as possible. See also note 3 on p. 717.

[2] I would hesitate to exclude these, or for that matter any other, expenses on the ground that their presence implies their necessity. On the other hand, there are no objections to deriving a Residual for any industrial process or a department of a firm.

[3] The exclusion of corporate taxes could be justified on the ground that ideally the share of capital should consist of rental payments only. But the magnitude of the latter depends on the interest rate used (and the longevity of capital), and that can be gross or net of taxes. (See also note 3 on p. 717.) Perhaps state and local taxes should be treated as payments for more identifiable services, while Federal taxes are excluded because of the prevailing nature of Federal activities, *i.e.*, defence. In some industries, such as road haulage, the treatment of government services—highways—can strongly affect the Residual.

1. *The Treatment of Raw Materials*

It is common in studies of this kind to exclude raw materials from both sides of the production equation, presumably in order to avoid double counting. Then the full production equation (with one kind of labour, capital and raw material),

$$Y = AL^{\alpha}K^{\beta}R^{\gamma} \tag{2.2}$$

is replaced by

$$Y' = A'L^{\alpha'}K^{\beta'} \tag{2.3}$$

where Y' is an index of value added in real terms, and $\alpha' = \frac{\alpha}{1-\gamma}$, and $\beta' = \frac{\beta}{1-\gamma}$. Thus R is given a weight of zero, and its former weight is assigned to L and K in proportion to their former weights. It is obvious that in the general case $A' \neq A$, and it will be shown in Part IV that, subject to a proper definition of Y', $A' > A$.[1]

Thus the exclusion of raw materials from both sides of the production equation exaggerates the Residual, or more correctly, results in a Residual with a different meaning. At this stage my preference is for A: we are interested in the Residual (it would be convenient to say here "technological progress") involved in the production, say, of shoes made from leather by labour and machinery with the help of electric power. The output of such a firm or industry is clearly shoes, familiar physical objects, and not shoes lacking leather and made without power. Leather and power are inputs not less essential than, and not inherently different from, labour or machinery, and as far as the danger of double counting is concerned, ways will be found (see below) for dealing with it. But let us not prejudge the issue: a use for A' will yet be found in Part IV.

2. *The Treatment of Depreciation*

There are three questions here: whether gross or net terms are more appropriate for expressing: (1) the stock of capital; (2) the output of a single firm or industry; and (3) the capital formation of the economy.

(1) *The Stock of Capital.* In the ideal case the problem is absent because capital of each vintage is treated as a separate input. When the value of the capital stock in some constant prices is used instead it should be gross or net of depreciation, depending on the relation between the productive qualities of capital and its age. This may vary among different countries, industries and kinds of assets. In the absence of relevant information, some deduction from the value of the gross stock of capital should be made, though I suspect

[1] On the statistical aspects of this problem see Zvi Griliches, "Specification Bias in Estimates o Production Functions," *Journal of Farm Economics*, Vol. XXXIX, February 1957, pp. 8–20.

that, at least in the advanced countries, it should be below conventional depreciation, heavily weighted as the latter is with tax considerations.[1]

(2) *The Output of a Firm or Industry.* A rental payment for the use of capital consists of depreciation and interest, or profit.[2] This also is its cost when it is owned by the firm, the form of ownership being irrelevant.[3] This cost is similar to that of raw materials, and its retention in the production equation is based on the same grounds (see above). Its exclusion will likewise overstate the Residual, or rather change its meaning. More about it will be said in Parts III and IV.

(3) *Capital Formation.* But from that it does not follow that all fixed capital formation, essentially the output of construction and machine-building industries, should be treated as a final product. To this we shall also return in Parts III and IV.

3. *Aggregation and Integration*

The purpose of this section is to work out a method, to be called Rule II, making the Residual invariant to aggregation and integration of processes, firms, industries and sectors. The following relations may exist among industries (or processes, or firms) comprising a given sector:

(1) All industries produce final goods only, in the sense that all goods are disposed of outside the sector. The finality of a good depends on the definition of the sector. Thus leather is a final good for the leather industry, but not for manufacturing.

(2) The whole output of one industry is used as an input by another industry in the same sector.

(3) A part of an industry's output serves as an input for another industry in the same sector, but not vice versa.

(4) An industry uses a part of its own output as an input.

(5) Industries use parts of each other's outputs (including their own) as inputs—a mutual input–output relationship.

[1] The difficulties may be smaller than they look, because all we need are the rates of growth of the several kinds of capital, not their absolute magnitudes. In the so-called seasoned industries the ratio of net to gross capital stock is likely to be fairly stable; hence they grow at similar rates. Elsewhere, given the rate of growth of either gross or net stock, the other can frequently be deduced.

[2] Perhaps more correctly, of depreciation, interest and profit, but no distinction is made in this paper between interest and profit.

[3] If a firm has assets with different longevities the allocation of gross profit among them in proportion to their values may be a poor approximation to their respective costs, because for some assets depreciation charges can be relatively more important than for others. It seems better to allocate net profit first and then add to it the corresponding "correct" depreciation charge. But an industry consisting of a number of firms is likely to have a variety of net profit rates, and the use of our method implies that high profit rates mean relatively high capital costs, which need not be true. Perhaps a uniform profit, or more correctly, interest rate, should be used instead, as was done by Reddaway and Smith, *op. cit.* This, however, leads to a further complication that the sum of all costs may exceed or fall short of the value of output of specific firms, and besides, this uniform interest rate may depend on the level and manner of aggregation. Unfortunately, I do not see any general and simple way of separating the cost of using capital from profit.

Case (1). *Simple Aggregation: Final Goods Only.* Let the sector consist of two completely integrated industries producing final goods only

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} \text{ and } Y_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} \tag{2.4}$$

To aggregate these industries we must decide on: (1) the nature of the weights, and (2) the manner of their use. The first choice is simple, because the three weights suggested by reason and/or convention—the value of each industry's output, the value of its final product and its value added—are identical here (in a given base period).[1] Hence *by our new Rule II* their weights are

$$v_1 = \frac{y_1}{y_1 + y_2} \text{ and } v_2 = \frac{y_2}{y_1 + y_2} \tag{2.5}$$

where (as indicated in the List of Symbols) each y indicates the value of the corresponding Y in the base period. Applied to geometric indexes, these weights are used as exponents: both sides of each production equation are raised to the power of the corresponding weight and the two expressions are *multiplied* by each other.[2] It is then found that $\bar{A}$, the rate of growth of the Residual for the whole sector, is

$$\bar{A} = v_1 \bar{A}_1 + v_2 \bar{A}_2 \tag{2.6}$$

that is, the weighted arithmetic mean of the $\bar{A}$'s of its components, the relative shares of the value of output (or at this stage, of the value of final output, or of the value added) acting as weights.

Case (2). *Simple Integration.* Let the sector consist of industry

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} R_2^{\gamma_1} \tag{2.7}$$

producing final goods only, and a fully integrated raw-material industry

$$R_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} \tag{2.8}$$

By substituting (2.8) into (2.7) we form one fully integrated industry which comprises the whole sector, and by the usual process of taking logarithms and differentiating in respect to time we obtain

$$\bar{A} = \bar{A}_1 + \gamma_1 \bar{A}_2 \tag{2.9}$$

If R_2 used R_3 as a raw material, which in turn used R_4, and so on, all of which belonged to our sector, with corresponding weights of γ_2 and γ_3, etc., then

$$\bar{A} = \bar{A}_1 + \gamma_1 \bar{A}_2 + \gamma_1\gamma_2 \bar{A}_3 + \gamma_1\gamma_2\gamma_3 \bar{A}_4 + \ldots \tag{2.10}$$

As $\gamma_1 = \frac{r_2}{y_1}$, $\gamma_1\gamma_2 = \frac{r_3}{y_1}$, $\gamma_1\gamma_2\gamma_3 = \frac{r_4}{y_1}$, etc.

[1] Reason and/or convention may, of course, suggest other weights. Our criterion is invariance of the Residual to integration and aggregation, but the uniqueness of our set of weights has not been proved.

[2] Alternatively, each equation could be first expressed in terms of logarithms or relative rates of growth, multiplied by its weights and then added to the other. Obviously, the same procedure can be applied to any number of industries in a sector.

It is clear that arithmetic aggregation (addition) of the production equations would not give a consistent result. See above, note 2, p. 713, and Klein, *op. cit.*

$$\bar{A} = \bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 + \frac{r_3}{y_1}\bar{A}_3 + \frac{r_4}{y_1}\bar{A}_4 + \dots \tag{2.11}$$

where each r is the value of the corresponding R in the base period.[1]

Suppose now that materials R_2 and R_3 still belong to our sector (cloth and yarn in manufacturing), but R_4 does not (cotton). Then we cannot integrate Y_1 beyond

$$Y_1 = A_1 A_2^{\gamma_1} A_3^{\gamma_1\gamma_2} L_1^{\alpha_1} L_2^{\gamma_1\alpha_2} L_3^{\gamma_1\gamma_2\alpha_3} K_1^{\beta_1} K_2^{\gamma_1\beta_2} K_3^{\gamma_1\gamma_2\beta_3} R_4^{\gamma_1\gamma_2\gamma_3} \tag{2.12}$$

and the rate of growth of the Residual of the sector is only

$$\bar{A} = \bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 + \frac{r_3}{y_1}\bar{A}_3 \tag{2.13}$$

Now the value of the *final* output of the sector y_1 is different from the total value of its output $y_1 + r_2 + r_3$, and from its value added $y_1 - r_4$, while for each component the value of its output differs from that of its value added. So in order to obtain expression (2.13) without first integrating the components, and yet making the Residual invariant to the degree of integration, the following (still temporary) reformulation of Rule II is required: the rate of growth of the Residual for the whole sector equals the sum of the $\bar{A}$'s of the component industries, each $\bar{A}$ weighted by the *ratio of the value of the output of its industry to the value of the final product of the sector* (in the base period).

The sum of the weights of the $\bar{A}$'s is larger than one $\left(1 + \frac{r_2}{y_1} + \frac{r_3}{y_1}\right)$, this being the most unusual and important attribute of Rule II. It is intuitively reasonable, at least at this stage, that the $\bar{A}$ of the combined, say, garment–weaving–spinning industry, should be a weighted *sum* of the $\bar{A}$'s of the components, and not just their weighted *mean* (with weights adding up to one), particularly if, for a moment, we think of the Residual as an index of technological progress.

It can easily be shown that if the weights assigned to each industry consisted of the ratio of its value added to the total value added of the sector, or of the value of its output divided by the value of the total output of the sector, the aggregation of industries would not give a result consistent with that of (2.13).[2]

[1] By definition, $\gamma_1 = \frac{r_2}{y_1}$, $\gamma_2 = \frac{r_3}{r_2}$. Hence $\gamma_1\gamma_2 = \frac{r_3}{y_1}$, etc.

[2] Going back to a sector consisting of one final-goods industry and one raw material as given in (2.7) and (2.8), value added weights would give us

$$\bar{A} = \frac{(y_1 - r_2)}{y_1}\bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 \tag{2.13a}$$

while value of output weights would result in

$$\bar{A} = \frac{y_1}{y_1 + r_2}\bar{A}_1 + \frac{r_2}{y_1 + r_2}\bar{A}_2 \tag{2.13b}$$

Both are different from the correct result as given by (2.9). The value of output of a sector in the sense used here is rather meaningless because its magnitude depends on the number of the sector's subdivisions (a source of error in the Leontief method discussed in Part V). Value added weights give an inconsistent result here, but a valid one in Part IV, where they are applied to specially defined value added indexes.

Case (1). *Simple Aggregation: Final Goods Only.* Let the sector consist of two completely integrated industries producing final goods only

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} \text{ and } Y_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} \tag{2.4}$$

To aggregate these industries we must decide on: (1) the nature of the weights, and (2) the manner of their use. The first choice is simple, because the three weights suggested by reason and/or convention—the value of each industry's output, the value of its final product and its value added—are identical here (in a given base period).[1] Hence *by our new Rule II* their weights are

$$v_1 = \frac{y_1}{y_1 + y_2} \text{ and } v_2 = \frac{y_2}{y_1 + y_2} \tag{2.5}$$

where (as indicated in the List of Symbols) each y indicates the value of the corresponding Y in the base period. Applied to geometric indexes, these weights are used as exponents: both sides of each production equation are raised to the power of the corresponding weight and the two expressions are *multiplied* by each other.[2] It is then found that $\bar{A}$, the rate of growth of the Residual for the whole sector, is

$$\bar{A} = v_1 \bar{A}_1 + v_2 \bar{A}_2 \tag{2.6}$$

that is, the weighted arithmetic mean of the $\bar{A}$'s of its components, the relative shares of the value of output (or at this stage, of the value of final output, or of the value added) acting as weights.

Case (2). *Simple Integration.* Let the sector consist of industry

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} R_2^{\gamma_1} \tag{2.7}$$

producing final goods only, and a fully integrated raw-material industry

$$R_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} \tag{2.8}$$

By substituting (2.8) into (2.7) we form one fully integrated industry which comprises the whole sector, and by the usual process of taking logarithms and differentiating in respect to time we obtain

$$\bar{A} = \bar{A}_1 + \gamma_1 \bar{A}_2 \tag{2.9}$$

If R_2 used R_3 as a raw material, which in turn used R_4, and so on, all of which belonged to our sector, with corresponding weights of γ_2 and γ_3, etc., then

$$\bar{A} = \bar{A}_1 + \gamma_1 \bar{A}_2 + \gamma_1\gamma_2 \bar{A}_3 + \gamma_1\gamma_2\gamma_3 \bar{A}_4 + \ldots \tag{2.10}$$

As $\gamma_1 = \frac{r_2}{y_1}$, $\gamma_1\gamma_2 = \frac{r_3}{y_1}$, $\gamma_1\gamma_2\gamma_3 = \frac{r_4}{y_1}$, etc.

[1] Reason and/or convention may, of course, suggest other weights. Our criterion is invariance of the Residual to integration and aggregation, but the uniqueness of our set of weights has not been proved.

[2] Alternatively, each equation could be first expressed in terms of logarithms or relative rates of growth, multiplied by its weights and then added to the other. Obviously, the same procedure can be applied to any number of industries in a sector.

It is clear that arithmetic aggregation (addition) of the production equations would not give a consistent result. See above, note 2, p. 713, and Klein, *op. cit.*

$$\bar{A} = \bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 + \frac{r_3}{y_1}\bar{A}_3 + \frac{r_4}{y_1}\bar{A}_4 + \dots \tag{2.11}$$

where each r is the value of the corresponding R in the base period.[1]

Suppose now that materials R_2 and R_3 still belong to our sector (cloth and yarn in manufacturing), but R_4 does not (cotton). Then we cannot integrate Y_1 beyond

$$Y_1 = A_1 A_2^{\gamma_1} A_3^{\gamma_1\gamma_2} L_1^{\alpha_1} L_2^{\gamma_1\alpha_2} L_3^{\gamma_1\gamma_2\alpha_3} K_1^{\beta_1} K_2^{\gamma_1\beta_2} K_3^{\gamma_1\gamma_2\beta_3} R_4^{\gamma_1\gamma_2\gamma_3} \tag{2.12}$$

and the rate of growth of the Residual of the sector is only

$$\bar{A} = \bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 + \frac{r_3}{y_1}\bar{A}_3 \tag{2.13}$$

Now the value of the *final* output of the sector y_1 is different from the total value of its output $y_1 + r_2 + r_3$, and from its value added $y_1 - r_4$, while for each component the value of its output differs from that of its value added. So in order to obtain expression (2.13) without first integrating the components, and yet making the Residual invariant to the degree of integration, the following (still temporary) reformulation of Rule II is required: the rate of growth of the Residual for the whole sector equals the sum of the $\bar{A}$'s of the component industries, each $\bar{A}$ weighted by the *ratio of the value of the output of its industry to the value of the final product of the sector* (in the base period).

The sum of the weights of the $\bar{A}$'s is larger than one $\left(1 + \frac{r_2}{y_1} + \frac{r_3}{y_1}\right)$, this being the most unusual and important attribute of Rule II. It is intuitively reasonable, at least at this stage, that the $\bar{A}$ of the combined, say, garment–weaving–spinning industry, should be a weighted *sum* of the $\bar{A}$'s of the components, and not just their weighted *mean* (with weights adding up to one), particularly if, for a moment, we think of the Residual as an index of technological progress.

It can easily be shown that if the weights assigned to each industry consisted of the ratio of its value added to the total value added of the sector, or of the value of its output divided by the value of the total output of the sector, the aggregation of industries would not give a result consistent with that of (2.13).[2]

[1] By definition, $\gamma_1 = \frac{r_2}{y_1}$, $\gamma_2 = \frac{r_3}{r_2}$. Hence $\gamma_1\gamma_2 = \frac{r_3}{y_1}$, etc.

[2] Going back to a sector consisting of one final-goods industry and one raw material as given in (2.7) and (2.8), value added weights would give us

$$\bar{A} = \frac{(y_1 - r_2)}{y_1}\bar{A}_1 + \frac{r_2}{y_1}\bar{A}_2 \tag{2.13a}$$

while value of output weights would result in

$$\bar{A} = \frac{y_1}{y_1 + r_2}\bar{A}_1 + \frac{r_2}{y_1 + r_2}\bar{A}_2 \tag{2.13b}$$

Both are different from the correct result as given by (2.9). The value of output of a sector in the sense used here is rather meaningless because its magnitude depends on the number of the sector's subdivisions (a source of error in the Leontief method discussed in Part V). Value added weights give an inconsistent result here, but a valid one in Part IV, where they are applied to specially defined value added indexes.

Case (3). *Simple Aggregation and Integration.* If one industry produces final products only, while the other—final products and materials used by the first, the reader can easily ascertain that Rule II continues to hold.

Case (4). *An Industry Using a Part of Its Own Output as an Input.* This may be a coal-mine using some of its own coal as a fuel. Let us go back to Case (2) and assume that the raw materials become more and more similar to each other and to the final product, so that their production equations approach that of Y_1 as given by (2.7). Integrating them into Y_1 we will have a fully integrated industry with a production equation of

$$Y_1 = A_1^{\frac{1}{1-\gamma_1}} L_1^{\frac{\alpha_1}{1-\gamma_1}} K_1^{\frac{\beta_1}{1-\gamma_1}} \tag{2.14}$$

while the rate of growth of the Residual (most conveniently obtained from (2.10) becomes

$$\bar{A} = \bar{A}_1(1 + \gamma_1 + \gamma_1^2 + \gamma_1^3 \ldots) = \frac{\bar{A}}{1 - \gamma_1} \tag{2.15}$$

If our industry, coal-mining, is to be aggregated with another one, copper-mining, then by Rule II (which can be now applied) the weight assigned to the former is y_1, that is the output of its *final goods* in the base period, and not $y_1 + r_2 + r_3 + \ldots$, the value of its *total* output. This is important, and Rule II should be amended (for the last time) as follows:

The rate of growth of the Residual for the whole sector equals the sum of the $\bar{A}$'s of the component industries, each $\bar{A}$ weighted by the ratio of the value of its product *final to the industry* (that is, used outside of the industry) to the value of the product *final to the sector* (used outside of the sector) in the base period.

This formulation shows the logical symmetry of the Rule: both the numerator and the denominator of each weight are value of final products, except that the numerator is final from the point of view of the component, while the denominator—from that of the whole sector. As industries are aggregated into sectors (dairy and bakery products into food), the latter into larger sectors (manufacturing) and so on, the weights are adjusted accordingly.

Case (5). *Complex Integration and Aggregation: Industries Using Parts of Each Other's Outputs as Inputs.* Let the sector consist of a coal-mine

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} Y_{21}^{\gamma_1} \tag{2.16}$$

and a power station

$$Y_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} Y_{12}^{\gamma_2} \tag{2.17}$$

where Y_{21} indicates power used by the coal-mine, and Y_{12}—coal used by the power station. The value of the output final to the mine in the base period is y_1; that of the power station is y_2; and the value of the output final to the sector is $y_1 - y_{12} + y_2 - y_{21}$. The direct application of Rule II (as modified in Case (4)) would give

$$\bar{A} = \frac{y_1\bar{A}_1 + y_2\bar{A}_2}{y_1 - y_{12} + y_2 - y_{21}} \tag{2.18}$$

To prove that Rule II continues to hold we must note that because our weights are constant in value terms, y_{21} is proportional to y_1, and therefore to y_2. Since the prices of Y_{21} and Y_2 are identical and both Y_{21} and Y_2 are index numbers with a common base period, Y_{21} is equal to Y_2. (In reality these conditions need not hold; hence this result, like all our results, will depend on the choice of the base period.) All that remains to do now is to substitute (2.17) into (2.16), and vice versa, obtain two industries using their own outputs as inputs and then apply the results of Case (4).

The Order of Aggregation. Strictly speaking, our aggregation tests of Rule II were for sectors consisting of only two industries. To show that Rule II holds for any number, we must establish: (1) that the Residual obtained by applying Rule II to the whole sector at once is identical with that derived from combining industries into sub-sectors, and sub-sectors into larger sectors, two at a time; and (2) that the Residual is not affected by the order of aggregation. Both proofs are not difficult and are omitted to save space.

III. Qualifications and Afterthoughts

1. *The Meaning of the Weight System*

According to Rule I (see p. 714), the constant weight assigned to each input is its value input coefficient, *i.e.*, the ratio of the value of the input to the value of the corresponding output in the base period. Thus we have here an input–output system in *value* terms, as distinguished from Leontief's well-known input–output scheme with constant *quantity* input coefficients, and from the SAK method (see p. 710) with its fixed *prices*. To the extent that prices and quantities move in opposite directions, which is not uncommon, our method violates reality not more, and frequently less, than the other two, but even a friendly reality will seldom move prices and quantities exactly in the required fashion.[1] The defect of this assumption is revealed most frankly when an industry uses a part of its output as an input. The prices of both being identical, this implies a constant quantity input coefficient, so that no economies in the use of an industry's own input could arise.

If Rule I squeezes our data, so to speak, through a grill with vertical parallel bars (the columns in the input–output scheme), Rule II adds the crossbars. As noted in Case (5), since y_{21}/y_1 and y_1/y_2 are constant, y_{21}/y_2 is also constant. Thus the combination of Rules I and II implies that the value of output of a given industry, and (its prices to all users being identical) the quantity of its output, are allocated among its users in constant proportions. This applies to homogeneous labour and capital as well.

Makers of index numbers have been traditionally free to choose arbitrary weight systems, and my grill squeezes life out of time series probably no harder than other common economic instruments. Laments do not absolve a crime, but they may temper one's affection for any particular system of weights and

[1] It is assumed here that income or revenue elasticity is one. Perhaps other elasticities should be experimented with, as suggested to me by Edwin Kuh.

encourage experimentation. Invariance to the degree of integration and aggregation, however desirable or necessary, is not the only important attribute of an index number.[1]

2. *Depreciation Once More*

It was argued in Part II that depreciation, being a partial cost of the use of capital, should be treated like the cost of raw materials, and that neither should be excluded from the production equation of a given firm or industry. Yet in a general aggregation of the whole economy raw materials used up in production are excluded from the final output (employed as the denominator of weights according to Rule II), while gross capital formation, a part of which is also used up in the productive process, would presumably be left in. And yet the distinction between raw materials and short-lived capital is arbitrary, and it can become troublesome if the length of the time period is changed (from a year to a decade and vice versa, for instance).[2]

To solve this difficulty, it may be suggested that the output of capital-producing industries (essentially construction and machine-building) should be divided into two parts: (1) equal to capital used up in the economy (or a sector), to be treated as a raw material; (2) the remaining part, net capital formation, in one sense or another, to be included in the final output.[3] In

[1] Experimentation with a chain index changing its weights periodically, or with continuously varying weights, might be a solution. If the shares in the following production equation are functions of time (but $\alpha + \beta = 1$)

(3.0a) $$Y = AL^{\alpha}K^{\beta}$$

then the usual procedure of taking logarithms and then differentiating in respect to time gives

(3.0b) $$\bar{A} = \bar{Y} - \alpha\bar{L} - \beta\bar{K} + \frac{d\alpha}{dt}\log\frac{K}{L}$$

(with outputs and inputs being indexes with a common base). In practically all growing economies $\log\frac{K}{L} > 0$, because $\bar{K} > \bar{L}$. In the United States at least, $\frac{d\alpha}{dt} > 0$. Hence $\bar{A}$ from (3.0b) will be larger than the corresponding one with constant shares. In general, an increase in the weight of a slowly growing input (and hence a reduction in that of a rapidly growing one) increases $\bar{A}$.

When the number of inputs exceeds two, the effect of varying weights is somewhat more complex. If we have two industries producing final products with subscripts 1 and 2 and with both the v's and shares being functions of time (but $v_1 + v_2 = 1$), the rate of growth of the Residual for the sector will be

(3.0c) $$v_1\bar{A}_1 + v_2\bar{A}_2 = v_1\left(\bar{Y}_1 - \alpha_1\bar{L}_1 - \beta_1\bar{K}_1 + \frac{d\alpha_1}{dt}\log\frac{K_1}{L_1}\right) + v_2\left(\bar{Y}_2 - \alpha_2\bar{L}_2 - \beta_2\bar{K}_2 + \frac{d\alpha_2}{dt}\log\frac{K_2}{L_2}\right)$$

The main problem regarding the use of variable weights lies not in algebraic manipulations, but in the meaning and usefulness of such a system. Space does not permit its analysis here.

[2] Thus, automobile dies lasting about a year can be put into either category. If we accept a general, and not unreasonable, rule that assets lasting more than, say, a year should be treated as capital formation if our time period is a year, they should become raw materials if we deal in decades. Since short-term fluctuations in output can strongly affect the magnitude of the Residual, working with longer time periods may be quite helpful, and yet different $\bar{A}$'s can result.

[3] I am intentionally avoiding here the distinction between depreciation, retirement and replacement. Whatever comes closest to measuring the deterioration of capital is relevant here.

effect, capital formation would be treated like inventories under the last-in-first-out method, as if a part of currently produced capital were used up in the productive process, while the existing stock lasted for ever. But as our capital, by assumption (see above, p. 712) merely accumulates without changing its form no new fantasies are involved.[1]

3. *The Treatment of Increments in Inventories as Final Products*

Suppose the base year situation of some material be as follows:

	$	$
Beginning inventory	10	
Produced during the year	100	110
Utilised " "		95
Final inventory		15
Increment in inventory		5

It would seem at first glance that $5 should be included in the value of the economy's (or sector's) final product without much ado. But it can be also argued that out of $95 worth of materials utilised during the year, $10 came out of the preceding year's output—a temporal import—so that the full $15 worth of final inventory—a temporal export—should be treated as a final product. If so, the total value of final products produced during the base year (the denominator of the weight system according to Rule II) will be larger, and the aggregate Residual (*ceteris paribus*) smaller.

The first approach—the net inventory or last-in-first-out method—implies that an inventory is never, so to speak, used up. It is a permanent piece of capital (and should be so treated), to which further additions may be made, while decrements are subtracted from other final goods. This is the more traditional method, easier to handle, closer to the national product framework and it yields a Residual invariant to the length of the time unit.

The second—the gross or first-in-first-out inventory method—may be closer to the spirit of Rule II with its strict distinction between inputs and outputs, but it creates complications. For the concept of temporal imports and exports implies a temporal input–output relationship, so that a consolidation of time periods (from annual to biennial, for instance), like that of raw material and final product industries, will affect the annual rate of growth of the Residual and at times may make it larger than that of either year. This need not be wrong, but it may be inconvenient.[2]

[1] This should be taken with a good dose of salt. And, of course, on the firm and industry level the vintage of capital must be recognised. One more remark on depreciation will be made in Part IV.

[2] For any given year the gross method, with its larger final product, yields a smaller Residual than the net one. Consolidation of time periods reduces this difference, and as the time unit expands the difference declines.

This strict separation between inputs and outputs required by Rule II is not a happy attribute, but it applies only to the construction of the weight system in the base period. Once that has been done, inputs and outputs can be freely offset against each other.

4. *Multiple Counting?*

There are several methods of obtaining the Residual for the whole economy: (1) each industry is completely integrated, and the $\bar{A}$ for the whole economy is a weighted arithmetic mean of the $\bar{A}$'s of the component industries, the weights being values of final products = values of total outputs = values added in the base period. This laborious method requires that the economy be completely closed both in space and in time (if the gross inventory method is used).

(2) The second method computes the $\bar{A}$'s of the individual industries and aggregates them by Rule II. Even if suspect of multiple counting, this method gives the same result (under the same conditions) as its more respectable predecessor.

(3) The third method aggregates all industries by Rule II and emerges with aggregate indexes of output and of input, with the ratio of the former to the latter being the Residual. Both indexes are so gross as to be almost meaningless, but the cancellation of outputs used as inputs from both sides restores normality and leaves on the output side the usual final goods, while labour, capital, land and spatial imports (with the net inventory method) remain on the input side. The sum of the weights of each reduced index being one, tradition is restored, but the aggregate Residual remains the same.

Though thus absolved of multiple counting, a system of weights based on the values of final products, which assigns such a heavy weight to retail trade, for instance, may still look suspicious. Yet the very fact that the ratio of value added to value of output in retail trade is small shows that materials purchased are resold with little change, thus making a large Residual rather unlikely. To weight this Residual with value added would penalise, as it were, retail trade twice. It is shown in the next section that when value added weights are chosen a different Residual must be used.

IV. Geometric Value Added Index

Value added weights are so deeply embedded in index-number construction that both duty and curiosity call for the derivation of the corresponding Residual and for a comparison of it with our A. As in Case (2) of Part II, let our sector consist of an industry

$$Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} R_2^{\gamma_1} \tag{4.1}$$

producing final goods only, and a fully integrated raw material industry

$$R_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} \tag{4.2}$$

The use of the value added method does not change (4.2), but (4.1) now becomes

$$Y_1' = A_1' L_1^{\alpha_1'} K_1^{\beta_1'} \tag{4.3}$$

where Y_1' is the index of value added in real terms obtained by some as yet unknown method, $\alpha_1' = \frac{\alpha_1}{1-\gamma_1}$, and $\beta_1' = \frac{\beta_1}{1-\gamma_1}$, and A'—the new Residual.

Since our sector is completely integrated, both methods should yield the same Residual for the sector as a whole. By Rule II,

$$\bar{A} = \bar{A}_1 + \gamma_1 \bar{A}_2 \tag{4.4}$$

Indicating the value added of the first industry in the base period by $y_1' = y_1 - r_2$, while r_2 remains that of the second, and weighting $\bar{A}_1'$ and $\bar{A}_2$ by $\frac{y_1'}{y_1' + r_2}$ and $\frac{r_2}{y_1' + r_2}$ respectively (which is a standard procedure), we find that

$$\bar{A}' = \bar{A}_1' \frac{y_1'}{y_1' + r_2} + \bar{A}_2 \frac{r_2}{y_1' + r_2} = (1-\gamma_1)\bar{A}_1' + \gamma_1 \bar{A}_2 \tag{4.5}$$

The equality of (4.4) and (4.5) results in

$$\bar{A}_1' = \frac{\bar{A}_1}{1-\gamma_1} \tag{4.6}$$

It can be easily shown that the nature of the result does not depend on the number of raw materials involved, or on the number of integration steps (as when R_2 uses R_3 and so on).

Thus $\bar{A}_1'$ is a simple multiple of $\bar{A}_1$, and each can be readily computed from the other, provided of course that Y_1' is correctly defined. The substitution of (4.6) into (4.3) defines

$$\bar{Y}_1' = \frac{\bar{Y}_1 - \gamma_1 \bar{R}_2}{1-\gamma_1} \tag{4.7}$$

or

$$\log Y_1' = \frac{\log Y_1 - \gamma_1 \log R_2}{1-\gamma_1} \tag{4.8}$$

At first glance, both expressions look strange. But if the logarithms are omitted for a moment we shall recognise in (4.8) the formula for the derivation of an arithmetic index of value added in base-year prices from the indexes of output and of raw material.[1] So Y' is an index of value added,

[1] Let X and M indicate the absolute magnitudes of a final product and a raw material, p and h their corresponding prices, subscripts 0 and 1—base and given year respectively and X', the value added in real terms, be defined as $p_0 X_1' = p_0 X_1 - h_0 M_1$. We are to prove that

$$\frac{X_1'}{X_0'} = \frac{\frac{X_1}{X_0} - \gamma \frac{M_1}{M_0}}{1-\gamma} \tag{4.8a}$$

The substitution of $\gamma = \frac{h_0 M_0}{p_0 X_0}$ into (4.8a) gives the desired result after a few simple cancellations.

but of a rather peculiar type. Its derivation is logical because the logarithm of a geometric mean is, after all, merely an arithmetic mean of the logarithms of its components. Yet I wonder whether an index of value added so defined has ever been used in problems of this type.

Derived from large aggregates, such as the American economy with relatively small spatial imports, A and A' will differ little, particularly if the net inventory method is used. But in smaller sectors, such as specific industries and firms where raw materials are important, the two measures can be far apart. Of the two, A seems to have a clearer meaning: it is derived from a production equation containing all identifiable outputs and inputs, without any arbitrary exclusions from either side. But this Residual is too absolute, so to speak; a small A may be simply caused by the " thinness " of the industry, that is by the small degree of transformation its raw materials undergo. The Residual A' is free from this defect, and its use greatly simplifies aggregation and integration of industries, but the meaning of a Residual arising, say, from the production of shoes without leather is less easy to understand.[1] Perhaps it is best to think of A' as an A adjusted in a way for the " thickness " of the industry rather than as a Residual directly obtained from a peculiar value added index, though one's attitude may be merely a matter of convenience and habit.

Following the suggestion made in Part III, Section 2, regarding the treatment of depreciation as a currently produced input from the capital-producing to the capital-using industry, we can show by the method just applied to raw materials that the rate of growth of the Residual computed from " net of depreciation " data equals $\frac{\bar{A}}{1-\delta}$, where δ is the share of current depreciation in the value of the industry's output in the base period. Once again the logarithm of the index of the " net of depreciation " output of the industry is derived in the peculiar manner just described from the logarithms of the indexes of the gross output and of capital.

Perhaps I should add that the Residuals computed net of raw materials and/or of depreciation are based on the same assumptions as A is, and thus share both its sins and virtues.

V. Leontief's Index of Structural Change

Leontief's method of measuring the structural change of an economy (or any part of it) suggested by him in 1953 was a natural by-product of his dynamic input–output scheme.[2] It consists of the following steps:

[1] The exclusion of leather might be justified by viewing the production process as " work " done on a given amount of raw materials. But electric power purchased outside is just as much a part of this " work " as labour is; yet the former is excluded and the latter is not from the usual definition of value added.

It should be noted that a large A or A' may be caused not by an industry's own efforts but by those of its suppliers.

[2] Wassily Leontief *et al.*, *Studies in the Structure of the American Economy* (New York, 1953), pp. 27–35.

1. The absolute difference between the magnitudes of a particular input coefficient (in quantity terms) at two points of time (such as 1929 and 1939) is divided by the arithmetic mean of the magnitudes in order to obtain the *relative* change in the coefficient.

2. These relative changes in all input coefficients for a given industry or economy are aggregated, each change weighted by the ratio of the mean value of the corresponding input in the two periods to the sum of mean values of all inputs.[1]

3. Since most of the changes (at least the important ones) in the input coefficients are likely to be negative (showing a saving in the use of inputs), it is convenient to place a negative sign before the index in order to make it positive.

Let the magnitudes of an input coefficient be q and q', and the values of the corresponding inputs x and x', in the beginning and in the end period respectively. Then the relative change in the coefficient is $\frac{q' - q}{\frac{q' + q}{2}}$, and the corresponding weight $\frac{\frac{x' + x}{2}}{\sum_{i=1}^{n} \frac{x_i' + x_i}{2}}$, n indicating the number of inputs in the industry or the economy.

In order to compare Leontief's index with our Residual, we shall replace his discrete terms with continuous ones. There are no restrictions on the selection of the base period in our method; hence Leontief's choice of averaging two periods, rather than selecting one, is fully acceptable. For convenience, I shall continue to use production equations of the same types as before, but Leontief's index does not depend on their particular form, except for the assumption that the sum of the values of all inputs (during the base period as defined) equals the value of the corresponding output.[2]

Case (1). *One Industry Producing Final Products.* Let its production equation be

$$Y = AL^{\alpha}K^{\beta}R^{\gamma} \tag{5.1}$$

with input coefficients of L/Y, K/Y and R/Y, and $l/y = \alpha$, $k/y = \beta$ and

[1] Leontief's own formulation is as follows: "The total value (price times quantity) of the corresponding input items can appropriately serve as a measure of the relative importance of the respective individual changes, if considered from the point of view of the system as a whole." He then adds that the weight is the mean value of the input, without specifically stating what the denominator of the weight is (p. 28). The interpretation given in the text seems to me to be fair; it was confirmed by a telephone conversation with the author.

[2] Leontief's index requires so few assumptions if it is interpreted in the same general sense as our Residual: to contain not only technological progress as such, but economies of scale, better management, etc.

$r/y = \gamma$ as the corresponding weights. Designating the relative rate of change of Leontief's index by I, we have

$$(5.2)\qquad I = -\left[\frac{\frac{d\left(\frac{L}{Y}\right)}{dt}}{\frac{L}{Y}}\alpha + \frac{\frac{d\left(\frac{K}{Y}\right)}{dt}}{\frac{K}{Y}}\beta + \frac{\frac{d\left(\frac{R}{Y}\right)}{dt}}{\frac{R}{Y}}\gamma\right]$$

as

$$(5.3)\qquad \frac{\frac{d\left(\frac{L}{Y}\right)}{dt}}{\frac{L}{Y}} = \dot{L} - \dot{Y}, \quad \frac{\frac{d\left(\frac{K}{Y}\right)}{dt}}{\frac{K}{Y}} = \dot{K} - \dot{Y}, \text{ and } \frac{\frac{d\left(\frac{R}{Y}\right)}{dt}}{\frac{R}{Y}} = \dot{R} - \dot{Y}$$

$$(5.4)\qquad \begin{aligned} I &= -[\alpha(\dot{L} - \dot{Y}) + \beta(\dot{K} - \dot{Y}) + \gamma(\dot{R} - \dot{Y})] \\ &= \dot{Y} - \alpha\dot{L} - \beta\dot{K} - \gamma\dot{R} = \dot{A} \end{aligned}$$

Thus for one industry Leontief's index and our Residual are identical.

Case (2). *Simple Aggregation: Two Industries Producing Final Products.* Let the sector consist of two industries

$$(5.5)\qquad Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} R_1^{\gamma_1}$$

$$(5.6)\qquad Y_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2} R_2^{\gamma_2}$$

without any input–output relationship between them. By Leontief's rule the corresponding weights will be of the form $\frac{l_1}{y_1 + y_2}$, $\frac{k_1}{y_1 + y_2}$, etc., because the sum of the values of all inputs equals $y_1 + y_2$. Following his rule and utilising the results of Case 1, we obtain

$$(5.7)\qquad I = -\left[\frac{\begin{array}{r}(L_1 - \dot{Y}_1)l_1 + (\dot{K}_1 - \dot{Y}_1)k_1 + (\dot{R}_1 - \dot{Y}_1)r_1 + \\ (L_2 - \dot{Y}_2)l_2 + (\dot{K}_2 - \dot{Y}_2)k_2 + (\dot{R}_2 - \dot{Y}_2)r_2\end{array}}{y_1 + y_2}\right]$$

Multiplying and dividing the first three parentheses by y_1, and the last three by y_2, we find

$$(5.8)\qquad I = \frac{y_1 I_1}{y_1 + y_2} + \frac{y_2 I_2}{y_1 + y_2} = \frac{y_1 \dot{A}_1}{y_1 + y_2} + \frac{y_2 \dot{A}_2}{y_1 + y_2} = \dot{A}$$

so that Leontief's index and our Residual are again identical.

Case (3). *Integration.* Let the first industry produce final products and the second raw materials used by the first:

$$(5.9)\qquad Y_1 = A_1 L_1^{\alpha_1} K_1^{\beta_1} R_2^{\gamma_1}$$

$$(5.10)\qquad R_2 = A_2 L_2^{\alpha_2} K_2^{\beta_2}$$

The integration of R_2 into Y_1 gives

$$Y_1 = A_1 A_2^{\gamma_1} L_1^{\alpha_1} L_2^{\gamma_1\alpha_2} K_1^{\beta_1} K_2^{\gamma_1\beta_2} \tag{5.11}$$

and the application of the results of Case (1) of this part and of Case (2) of Part II,

$$\begin{aligned} I &= Y - \alpha_1 L_1 - \gamma_1\alpha_2 L_2 - \beta_1 K_1 - \gamma_1\beta_2 K_2 \\ &= A = A_1 + \frac{r_2}{y_1} A_2 = I_1 + \frac{r_2}{y_1} I_2 \end{aligned} \tag{5.12}$$

If, however, we do not integrate R_2 into Y_1, but aggregate (5.9) and (5.10) then, as given in Case 2, the result will be

$$I = \frac{y_1 I_1 + r_2 I_2}{y_1 + r_2} < I_1 + \frac{r_2}{y_1} I_2 \tag{5.13}$$

Thus Leontief's index is not invariant to the degree of integration. His method disregards the fact that an input–output relationship among industries produces a Residual, or an index of structural change, whose relative rate of growth is larger than the conventionally weighted sum of the A's or I's of the individual industries.[1]

This indentity between the corrected Leontief's Index and our Residual becomes particularly interesting when the diverse origins of the two concepts—an input–output matrix and a geometric index—are recalled. The former method is less laborious, but at this stage at least, the changing input–output matrix is a more familiar and powerful analytical tool.

* * *

Any reader who has managed to get this far will undoubtedly sympathise with Schumpeter's reported remark that methodology is the last refuge of the scoundrel. My justification for the long journey into this swampy land lies in the conviction that further work on Residuals, defined in one way or another, will help in understanding the process of economic growth, and possibly not only that. As mentioned in Section I, the heavy weight usually assigned to the labour input in aggregate studies almost insures a close relationship between the rates of growth of the Residual and of ordinary labour productivity, and thus does not add much to our knowledge. But Residuals obtained from individual industries and sectors (and perhaps even from firms) and their comparisons in time and in space look more promising, however difficult the conceptual and statistical problems may turn out to be.

Evsey D. Domar

Massachusetts Institute of Technology,
Cambridge 39.

[1] Suppose a sector consists of shoes and leather, with equal $\bar{A}$'s (or I's) of 2% per year. Then Leontief's method would give a combined $\bar{I}$ also of 2%. Our Residual would be larger because the sector benefits from a Residual (may I say here "from technological change?") in the shoe *and* in the leather industries. But if leather was replaced by boots, both methods would give a combined $\bar{A}$ or $\bar{I}$ of 2%.

LONG-RUN IMPLICATIONS OF ALTERNATIVE FISCAL POLICIES AND THE BURDEN OF THE NATIONAL DEBT[1]

I. Introduction

The time-honoured controversy over the burden of the National Debt has flared up once more. The view, almost unchallenged a few years back, that the National Debt is no burden on the economy and that the real cost of government expenditure, no matter how financed, cannot be shifted to "future generations" has been on the retreat under a powerful counter-attack spearheaded by the contributions of J. M. Buchanan,[2] J. E. Meade[3] and R. A. Musgrave.[4] These authors, while relying to a considerable extent on older arguments, have significantly enriched the analysis by blending the traditional approach with the new insights provided by the Keynesian revolution. But even these most recent contributions have failed, in our view, to provide an altogether adequate framework—a failure resulting at least in part from the Keynesian tendency to emphasise flows while paying inadequate attention to stocks. It is the purpose of this paper to propose a fresh approach to this problem, and to show that, unlike its predecessors, it leads to a consistent and yet straightforward answer to all relevant questions.

Unless otherwise noted, the National Debt will be defined here as consisting of: (1) all claims against the Government held by the private sector of the economy, or by foreigners, whether interest bearing or not (and including therefore bank-held debt and (government currency, if any);

[1] A number of colleagues at Massachusetts Institute of Technology and other institutions have greatly helped me with their comments on a preliminary draft of this paper. I wish particularly to acknowledge the many useful suggestions of Ralph Beals, James Buchanan, Sukhamoy Chakravarty, Margaret Hall and Merton Miller.

[2] J. M. Buchanan, *Public Principles of the Public Debt* (Homewood, Illinois: Richard D. Irwin, 1958).

[3] J. E. Meade, "Is the National Debt a Burden?" *Oxford Economic Papers*, Vol. 10. No. 2, June 1958, pp. 163–83, and "Is the National Debt A Burden: A Correction," *ibid.*, Vol. 11, No. 1, February 1959, pp. 109–10.

[4] R. A. Musgrave, *The Theory of Public Finance* (McGraw-Hill, 1959), especially Chapter 23. Other recent contributions include: the reviews of Buchanan's book by A. P. Lerner, *Journal of Political Economy*, Vol. 47, April 1959, pp. 203–6; E. R. Rolph, *American Economic Review*, Vol. 49, March 1959, pp. 183–5, and A. H. Hansen, *Review of Economics and Statistics*, Vol. 41, June 1959, pp. 377–8; also "The Public Debt: A Burden on Future Generations?" by W. G. Bowen, R. G. Davis and D. H. Kopf, *American Economic Review*, Vol. 50, September 1960, pp. 701–6; and the forthcoming note by A. P. Lerner, "The Burden of Debt," *Review of Economics and Statistics*, Vol. 54, No. 2, May 1961.

Since the completion of this paper, three comments on the Bowen, Davis and Kopf communication by W. Vickrey, T. Scitovsky and J. R. Elliott and a reply by the authors have also appeared in the March 1961 issue of the *American Economic Review*, pp. 132–43.

less (2) any claims held by the Government against the private sector and foreigners.[1]

From a methodological point of view, the central contention of our analysis is that to grasp fully the economic effects of alternative fiscal policies and of the National Debt, we must pay proper attention to stocks as well as to the usual flow variables and to the long-run as well as to the impact effects. Among the substantive implications of this line of approach, the following may be mentioned here by way of a rough summary: (1) Given the government purchase of goods and services, an increase of the (real) National Debt, whether internal or external, is generally advantageous to those present at the time of the increase (or to some subset thereof). (2) Such an increase will generally place a " gross burden " on those living beyond that time through a reduction in the aggregate stock of private capital, which, as long as the (net) marginal productivity of capital is positive, will in turn cause a reduction in the flow of goods and services. Furthermore, this loss (as well as the gain under (1) above) will tend to occur even when lack of effective private demand would prevent the maintenance of full employment in the absence of the deficit, though the relative size of gain and losses may be quite different in these circumstances. (3) These conclusions hold in reverse in the case of a reduction in the real National Debt. That is, such a decline is burdensome on those present at the time of the reduction and tends to generate a gross gain for those living beyond. (4) *If* the rate of interest at which the Government borrows can be taken as a good approximation to the marginal productivity of private capital, then the gross burden (or gain) to " future generations " referred to under (2) and (3) can be *measured* by the interest charges on the National Debt. (5) The gross burden may be offset in part or *in toto*, or may be even more than offset, in so far as the increase in the debt is accompanied by government expenditure which contributes to the real income of future generations, *e.g.*, through productive public capital formation.[2]

This summary is very rough indeed and is subject to numerous qualifications and amendments, many of which will be noted below. In any event, I should like to emphasise that the stress of this paper is on developing a method of analysis rather than on presenting a body of doctrines. For this reason I will try to relate my analysis to earlier points of view whenever this seems helpful in clarifying the issues involved. At the same time I will endeavour to stay clear of many traditional but somewhat sterile controversies, such as whether the analogy between private and public debt is true or false.

[1] This definition implies that the National Debt could in principle be negative. Even in this case we shall refer to it by the same name, although its magnitude will be expressed by a negative number. Similarly, we refer to an operation that reduces the algebraic value of the National Debt as a " reduction," even if the debt was initially zero or negative.

[2] The difference between the increase in the National Debt in a given interval and the Government expenditure contributing to future income corresponds roughly to the net increase in what Professor Meade has called the " deadweight " debt. Cf. *op. cit.*

II. A Bird's Eye View of the Classical and Post-Keynesian No-transfer and No-burden Argument

We begin by reviewing the very persuasive arguments supporting the doctrine that the cost of the current government use of resources cannot be transferred to future generations and that the National Debt is no burden on them. Since these arguments have been presented many times in the last couple of centuries and have been extensively restated in recent years, we can afford to recapitulate them very briefly in terms of the three propositions presented below—at the cost of glossing over some of the fine points and of foregoing the pleasure of citing " chapter and verse." [1]

(1) Individuals or sub-groups within an economic system can, by means of borrowing, increase the current flow of goods available to them and pay for this increase out of future output. But they can do so only because their borrowing is " external," *i.e.*, matched by a lender who yields current goods in exchange for later output. But a closed community cannot dispose of more goods and services than it is currently producing. It certainly cannot increase this flow by paying with future output, for there is no way " we can dispose to-day of to-morrow's output." Hence the goods and services acquired by the Government must always be " paid for " by those present at the time in the form of a reduction in the flow of goods available to them for private use, and cannot possibly be paid for by later generations, whether the acquisition is financed by taxes or by internal borrowing. Only through external borrowing is it possible to benefit the current generation and to impose a burden on the future.

(2) Although internal borrowing will leave in its wake an obligation for future tax-payers to pay the interest on the National Debt and, possibly, to repay the principal, this obligation is not a net burden on the community as a whole, because these payments are but transfers of income between future members of the community. The loss of the tax-payers is offset in the aggregate by the gain of the beneficiary of the payment. These transfers may, of course, occur between people of different ages and hence of different " generations," and in this sense internal borrowing may cause " inter-generations transfers," but it will not cause a net loss to society.

The above two arguments, or some reasonable variant thereof, have provided the cornerstone of the no-transfer, no-burden argument over the last two centuries or so. It was left for Keynesian analysis to provide a third argument, removing thereby a potentially troublesome objection to the first two. If the cost of government expenditure always falls on the current generation, no matter how financed, why not forego altogether the painful activity of levying taxes? Yet our common sense rebels at this

[1] The reader interested in establishing just who said what will find much useful material in Buchanan, *op. cit.*, especially Chapters 2 and 8, and in B. Griziotti, " La diversa pressione tributaria del prestito e dell'imposta " in *Studi di scienza delle finanze e diritto finanziario* (Milano: Giuffre, 1956), Vol. II, pp. 193–273.

conclusion. A partial answer to this puzzle was provided by recognising that taxes, even when paid back in the form of transfers, generate some "frictional loss," because most if not all feasible methods of raising tax revenue tend to interfere with the optimum allocation of resources.[1] Presumably the ever-increasing level of the National Debt resulting from full deficit financing of current expenditure would require raising through taxes an ever-growing revenue to pay the interest on the debt. Eventually the ratio of such taxes to national income plus transfers would exceed the ratio of government expenditure to national product, giving rise to frictional tax losses which could have been avoided through a balanced budget. While these considerations do provide a *prima facie* case for a balanced-budget policy, the case is not tight, for could not the interest itself be met by further borrowing?

However, we need not follow these fancy possibilities, for the Keynesian analysis has provided a much more cogent argument to support the need for an "appropriate" amount of taxation, although not necessarily for a balanced budget. This argument, which reaches its most elegant formulation in the so-called principle of "functional finance" enunciated by Lerner,[2] can be roughly summarised as follows.

(3) Given the full employment output, say $\bar{X}$, and given the share of this output which it is appropriate to allocate for government use, say $\bar{G}$, there is a maximum amount of output that is left available for the private sector, say $\bar{P} = X - \bar{G}$. Now the private sector demand for output, say P, is a function of income and taxes, say $P = \mathscr{P}(X, T)$, with $\frac{\delta P}{\delta T} < 0$. Taxes are then to be set at that level, say $\bar{T}$, which satisfies the equation $\mathscr{P}(X, T) = P$. A higher level of taxes would generate unemployment and a lower level would generate inflation, both evils which it is the task of the Government to avoid. $\bar{T}$ may turn out to be larger than $\bar{G}$, calling for a surplus, or smaller than $\bar{G}$, or even perchance just equal to $\bar{G}$, implying a balanced budget. But in any event, the purpose of taxes is not to make the current members of the community pay for the government use of goods, which they will do in any event, the real reason we need to put up with the unpleasantness of taxes is to prevent the greater social evil of inflation.

III. A Bird's Eye View of the Classical and Post-Keynesian Transfer and Burden Argument

The basic contention of this school of thought, which itself has a long tradition, is that in general—though possibly with some exceptions—a

[1] See, *e.g.*, J. E. Meade, "Mr. Lerner on 'The Economics of Control,'" Economic Journal, Vol. LV, April 1945, pp. 47–70.

[2] See, *e.g.*, "Functional Finance and the Public Debt," *Social Research*, Vol. 10, No. 1, and "The Burden of the National Debt" in *Income Employment and Public Policy* (New York: Norton & Company, 1948).

debt-financed public expenditure will place no burden at all on those present at the very moment in which the expenditure takes place, and will instead place a burden on all tax-payers living thereafter. This burden may fall in part on those present at the time of the expenditure, but only in so far as they are present thereafter. The arguments which support this position have also been repeatedly stated and have been thoroughly reviewed quite recently by Buchanan. It will therefore again be sufficient to summarise them very briefly in the following two propositions:

(1) The cost of a tax-financed expenditure is borne currently, for the resources obtained by the Government come from a forcible reduction in the resources of current tax-payers. But an expenditure financed by debt, whether internal or external, as a rule places no burden on those present at the time of the expenditure in that, and in so far as, the resources acquired by the Government are surrendered in a voluntary exchange by the savers, who thereby acquire government bonds (in lieu of some other asset).

(2) The burden is imposed instead on all future tax-payers, who will have to pay taxes to service the debt. These taxes are *not* a mere transfer of income, but a net burden on society, for, in the absence of the debt-financed expenditure, the taxes would not have been levied, while the investors in bonds would have received the income just the same, directly or indirectly, from the return on the physical assets in which their savings would have been invested. This argument *does not* imply that a debt-financed expenditure will necessarily affect future generations unfavourably. In order to assess the " net outcome," we must subtract from the gross burden represented by the extra taxes benefits, if any, resulting from the expenditure. Thus the net outcome might even be positive if the expenditure undertaken produced greater benefits than the private capital formation which it replaces. But the argument does imply that, through deficit financing, the expenditure of the Government is being " paid for " by future generations.

A careful application of the *reasoning* underlying (1) and (2) will reveal circumstances in which the above conclusions do not hold and the allocation of the burden may be independent of the form of financing used. There are in particular two important cases which are treated at some length by Buchanan and which bring to light the contribution of Keynesian analysis also to this side of the argument. The first is the case of debt-financed expenditure in deep depressions, when private capital formation could not, in any event, provide an adequate offset to full-employment saving. Here, according to Buchanan, not even a gross burden need result to future tax-payers, for the expenditure could in principle be financed by interest-free issuance of currency. The second exception discussed by Buchanan is that of a major war. Unfortunately, the chapter on war financing is one of the least convincing in his book, and what follows may represent more nearly my application of his framework than a faithful summary of his argument. Suppose the war effort is sufficiently severe so that the allocation of resources

to various uses, and to capital formation in particular, is completely determined by war necessities. In such a situation the way in which the Government finances its expenditure cannot affect private consumption or capital formation. It would seem therefore that the burden of reduced consumption must be borne by the current generation, even if the reduction is achieved not through taxes but through a combination of rationing and voluntary increases in saving and the unspent disposable income is invested in claims against the Government. Similarly, the burden of the reduction in useful capital formation is borne by those living after the war, again independently of financing. In this case, as well as in the case of depression financing, the taxes levied to pay the interest on the increased debt would indeed seem to result in a pure transfer, for the income associated with the bonds would *not* have come to exist had the Government decided respectively to tax, or to print money, instead of borrowing.

J. E. Meade has also lately associated himself with those maintaining that the National Debt is a burden,[1] but his argument is quite different from the classical one, and bears instead all the marks of post-Keynesian analysis. He is not concerned with the differential effect of deficit versus tax financing, but asserts none the less that government debt in excess of government-owned physical capital—the so-called deadweight debt—is a burden on the economy. Unfortunately his contribution, which is so stimulating in analysing the effects of a major capital levy, is less than convincing in its attempt to establish that the deadweight debt is a burden. For his demonstration seems to rely entirely on the proposition that elimination of the debt would be a blessing for the economy in that it would encourage saving through a "Pigou type" effect, besides reducing the frictional costs of transfers. Now the tax-friction proposition, though valid, is not new,[2] and had already been generally accepted as a second-order amendment to the no-burden argument. On the other hand, the first and central argument is rather unconvincing. For, as Meade himself recognises, a reduction in National Debt, be it through a capital levy, budget surplus or inflation, would spur saving whether or not the debt reduced thereby was "deadweight" debt. In fact, at least the first two means would tend to increase saving, even if they were applied in a situation where the National Debt was zero to begin with, and the outcome would be that of driving the economy into a position of net indebtedness *vis-à-vis* the Government. Finally, Meade's analysis throws no light on whether the increase in saving following the capital levy is a permanent or a purely transitory phenomenon, nor on who, if anyone, bears the burden of a debt reduction. In spite of these apparent shortcomings, I am encouraged to think that Professor Meade's views are fundamentally quite close to those advanced here. I hope this will become gradually apparent, even without much further explicit reference to his argument.

[1] Meade, *op. cit.*

[2] See, *e.g.*, the references in footnote 1, p. 733, above, and in Buchanan, *op. cit.*, p. 14, footnote 8.

IV. Fallacies in the No-transfer No-burden Argument

The classical argument summarised in the last section appears so far rather convincing, and if so we should be able to pinpoint the fallacies in one or more of the three propositions of Section II.

The fallacy in proposition (1) is not difficult to uncover. It is quite true that a closed community cannot increase its current resources by relying on to-morrow's unproduced output. None the less, the way in which we use to-day's resources can affect in three major ways the output that will result to-morrow from to-morrow's labour input: (i) by affecting the natural resources available to the future; (ii) by improving technological knowledge; and (iii) by affecting the stock of man-made means of production, or capital, available to future generations. Hence government expenditure, and the way it is financed, *can* affect the economy in the future if it affects any of the above three items.

The argument in (3) is also seriously inadequate, and the post-war experience has brought this home sharply. For the demand of the private sector consists of consumption C and capital formation I, and at least the latter component depends not only on income and taxes but also on monetary policy. Once we acknowledge this point, the principle of Functional Finance no longer implies a unique level of taxes. To demonstrate this point and its implications, it will be convenient—though it is not essential—to suppose that monetary policy affects P exclusively through the intermediary of the rate of interest r, *i.e.*, that $P = \mathscr{P}(X, T, r)$ with $\frac{\delta P}{\delta r} < 0$; and that r in turn depends on X and the quantity of money M. But once we admit that r enters not vacuously in $\mathscr{P}$ we must also recognise that the equation

$$\mathscr{P}(\bar{X}, T, r) = \bar{P} \tag{1}$$

will be satisfied not by one but by many possible values of T, each value being accompanied by the appropriate value of r, say $r(T)$. Now in most circumstances—that is, except possibly in very deep depression—there will be a range of values of T such that the corresponding $r(T)$ is achievable by an appropriate monetary policy. There is therefore not one but a whole schedule of values of T which are consistent with the maintenance of full employment and price stability, each value of T being accompanied by an appropriate monetary policy. Furthermore, within this range there will tend to be a direct connection between T and the capital formation component of $\bar{P}$. If, starting from a correct combination of T, r and M, we lower taxes we will increase consumption, and to offset this we must reduce capital formation by appropriately tightening monetary policy. Conversely, by increasing taxes we can afford to have a larger capital formation. Thus, given the level of government expenditure, the level of taxes, and

TABLE I

A. *Effects of Government Expenditure and Financing on Private Saving and Capital Formation*

(Full Employment—All variables measured in real terms)

Method of Financing.	Income, X. (1)	Government Expenditure, G. (2)	Taxes, T. (3)	Disposable Income, Y. $(X - T)$ (4)	Consumption, C. $(c_0 + cY)$ $(c = 0{\cdot}6)$ (5)	Saving $S = \Delta W$ $(Y - C)$ (6)	Deficit, D. $(G - T)$ (7)	Private capital formation $I = \Delta K$ $(S - D)$ (8)
(*a*) Initial situation	2,000	300 (G_0)	300	1,700	1,500 (C_0)	200 (S_0)	0	200 (S_0)
(*b*) Increased expenditure–deficit financed	2,000	400 ($G_0 + dG$)	300	1,700	1,500 (C_0)	200 (S_0)	100 (dG)	100 ($S_0 - dG$)
(*c*) Increased expenditure—tax financed	2,000	400 ($G_0 + dG$)	400	1,600	1,440 ($C_0 - cdG$)	160 ($S_0 - sdG$)	0	160 ($S_0 - sdG$)

B. *Comparative "Burden" Effects of Alternative Budgetary Policies*

Budgetary policy.	Private capital formation.	Effect on "Burden."
1. Joint effect of increased expenditure *and* deficit financing	$I(b) - I(a)$ [1] $= (S_0 - dG) - S_0 = -dG$	$r^*(dG)$
2. Joint effect of increased expenditure and taxes	$I(c) - I(a) = (S_0 - sdG) - S_0 = -sdG$	$r^*s(dG)$
3. Differential effect of deficit financing	$I(b) - I(c) = (S_0 - dG) - (S_0 - sdG) = -(1 - s)dG = -cdG$	$r^*c(dG)$

[1] $I(a)$ means investment in situation (a), and similarly for $I(b)$ and $I(c)$.

hence of budget deficit, does affect " future generations " through the stock of capital inherited by them.

Having thus brought to light the weaknesses in arguments (1) and (3), it is an easy matter to establish that, at least under certain conditions, the Keynesian framework is perfectly consistent with the classical conclusion stated in Section III. Suppose we take as a starting-point a given G, and some given combination of T and r consistent with full employment. Suppose further, as is generally assumed in Keynesian analysis, that to a first approximation consumption responds to taxes but not to interest rates. Now let the Government increase its expenditure by dG while keeping taxes constant. Then the deficit will increase precisely by $dD = dG$. What will happen to capital formation? If we are to maintain full employment without inflation we must have

$$dG + dC + dI = 0$$

and since, by assumption, taxes are constant and hence $dC = 0$, we must have

$$dG = dD = -dI$$

i.e., the debt-financed expenditure must be accompanied by an equal reduction in capital formation (with the help of the appropriate monetary policy).

This outcome is illustrated by a numerical example in Table I. Row (*a*) shows the behaviour of the relevant flows in the initial situation, taken as a standard of comparison: here the budget is assumed to be balanced, although this is of no particular relevance. In row (*b*) we examine the consequence of an increase of expenditure by 100, with unchanged taxes, and hence consumption. The amount of resources available for, and hence the level of private capital formation, is cut down precisely by the amount of the deficit-financed expenditure. It is also apparent that this expenditure puts no burden on the " current " members of the community. Their (real) disposable income is unchanged by the expenditure, and consequently so is their consumption, as well as the net current addition to their personal wealth or private net worth. But because capital formation has been cut by the amount of the deficit, the community will thereafter dispose of a stock of private capital curtailed to a corresponding extent.

Thus the deficit-financed expenditure will leave in its wake an overall burden on the economy in the form of a reduced flow of income from the reduced stock of private capital.

V. Interest Charges and the " True " Burden of Debt Financing

The analysis of the last section is seen to agree with the classical conclusion that debt financing transfers the burden of the government expenditure to those living beyond the time of the expenditure. At the same time it indicates that this burden consists in *the loss of income from capital* and not in *the taxes levied on later members to pay the interest charges*, as the classical argument contends.

In some respects this amendment to the classical burden position may be regarded as rather minor, for it can be argued that, under reasonable assumptions, the interest charges will provide a good *measure* of the true burden. Indeed, as long as the amount dD is not large in relation to the stock of capital (and the flow of saving), the loss in the future stream of output will be adequately approximated by $r^*(dD)$, where r^* denotes the marginal productivity of capital. Now if the Government borrows in a competitive market, bidding against other seekers of capital, then the (long-term) interest rate r at which it borrows will also be a reasonable approximation to r^*. Hence the annual interest charges $r(dD)$ will also be a good approximation to the true social yearly loss, or opportunity cost, $r\ (dD)$ [1]—provided we can also establish that the initial reduction in the stock of capital will not be recouped as long as the debt is not repaid.

One can, however, think of many reasons why the interest bill might not even provide a good *measure* of the true loss. To begin with, if the government operation is of sizeable proportions it may significantly drive up interest rates, say from r_0 to r_1, since the reduction in private capital will tend to increase its marginal product. In this case the interest on the debt will overstate the true burden, which will lie somewhere between $r_0(dD)$ and $r_1(dD)$. More serious are the problems arising from various kinds of imperfections in the commodities as well as in the capital markets. In particular, the Government may succeed in borrowing at rates well below r^* by forcing banks and other intermediaries to acquire and hold bonds with yields below the market, or, as in war-time, by effectively eliminating the competition of private borrowers. In the first-mentioned case, *e.g.*, we should add to the interest bill the lost income accruing to the bank depositors (or at least to the bank's stockholders). There is also the rather nasty problem that, because of uncertainty, the rate of interest may not be a good measure of the productivity of physical capital. To put it very roughly, r is at best a measure of return net of a risk premium, and the actual return on capital is better thought of as a random variable whose average value is, in general, rather higher than r.[2]

Besides the relation of r to r^* there is another problem that needs to be recognised. In our discussion so far, and in our table, we have assumed that consumption, and hence private saving, were unaffected because taxes were unchanged. But once we recognise that the borrowing may increase the interest rate, we must also recognise that it may, through this route, affect consumption even with unchanged taxes. This problem might well be quickly dismissed under the principle of "*de minimis*." For, though economists may still argue as to whether an increase in interest rates will

[1] This is precisely the position taken by Musgrave, *op. cit.*, p. 577.

[2] Cf. F. Modigliani and M. H. Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment," *American Economic Review*, Vol. 58, No. 3, June 1958, pp. 261–97. However, Miller has suggested to me that r may be the more relevant measure of return on capital as it deducts an appropriate allowance for the "cost" of risk bearing.

increase or decrease saving, they generally agree that the effect, if any, will be negligible.[1] But even if the rate of saving were to rise from, say, S_0 to $S_0 + e$ and the level of capital formation were accordingly reduced only by $dD - e$, one could still argue that r^*dD and not $r^*(dD - e)$ is the relevant measure of the true loss to society. This is because, as suggested by Bowen *et al.*,[2] the income generated by the extra capital formation e may be quite appropriately regarded as just necessary to offset the extra sacrifice of current consumption undertaken by those who responded to the change in r.

Thus it would appear that the classical-burden position needs to be modified to the extent of recognising that the burden of deficit financing consists not in the increased taxes as such, but rather in the fall in income generated by the reduction in the stock of capital. But this modification would seem rather innocuous, since, admittedly, rdD will generally provide a reasonable approximate *measure* of the true burden. In fact, however, the amendment we have suggested turns out to have rather far-reaching implications as we will show presently.

VI. Shortcomings of the Classical Transfer and Burden Argument: The Differential Effect of Deficit Versus Tax Financing

The classical conclusion that deficit financing of an expenditure places the burden on the future seems to imply that, if the expenditure were financed by taxes, there would be no burden in the future. Interestingly enough, Buchanan's book provides nowhere a systematic treatment of the temporal distribution of the burden from a tax-financed expenditure. Nor is this really surprising, for if the burden were in fact the interest of the debt, then tax financing could generate no burden on the future.[3] But if the relevant criterion is instead the loss of capital formation, then in order to find the true differential effect of debt financing versus tax financing, we must inquire about the effects of tax financing on private saving and capital formation. Only if this effect were nil or negligible would the classical conclusion be strictly valid.

Now, to an economist steeped in the Keynesian tradition, it is at once obvious that raising taxes to finance the government expenditure cannot fail to affect significantly private saving and capital formation. While tax financing will reduce disposable income by the amount of the expenditure, it will reduce consumption only by an amount $cdT = cdG$, where c is the marginal propensity to consume. The rest of the tax will be borne by a reduction in saving by sdT, where $s = 1 - c$ is the marginal propensity to save. Accordingly, if the initial position was one of full employment, as we are assuming, and inflation is to be avoided, private capital formation

[1] This is especially true if current consumption is appropriately defined to include the rental value and not the gross purchase of consumers' durables.

[2] Bowen, Davis and Kopf, *op. cit.*, p. 704.

[3] See, however footnote 1, p. 746, for a different explanation of Buchanan's omission.

must itself be reduced by the amount sdG (through the appropriate monetary policy).[1] This outcome is illustrated numerically in row (c) of Table I. By comparing the outcomes (a), (b) and (c) as is done in part B of the table, we find that the differential effect of the deficit versus tax financing is to decrease capital formation by $dG - sdG = cdG$. The balance of the reduction, namely sdG, must be attributed to the expenditure as such, independently of how financed.[2] Hence, even if we are willing to regard the interest rate paid by the Government as a good approximation to r^*, the differential burden of debt financing on the future generations is not rdG but only $rcdG$.

It can readily be seen that the above result is not limited to the case we have explicitly discussed so far, in which the deficit arises from an increase in expenditure. If, for whatever reason, a portion dD of the government expenditure is not financed by taxes but by deficit, capital formation tends to be reduced by approximately $c(dD)$. This conclusion is, however, subject to one important qualification, namely that for $T = \bar{G}$, *i.e.*, with a level of taxation balancing the budget, there exists a monetary policy capable of achieving full employment—or, in terms of our previous notation, of enforcing the required rate of interest $r(\bar{T})$. When this condition is satisfied we shall say that there is a " potentially adequate private demand," or more briefly, an " adequate demand." We shall for the moment concentrate attention on this case, reserving the task of examining the implications of a lack of adequate demand to a later point.

Our result so far, then, is that even with an adequate demand, the net or differential burden placed on the future by debt financing is not nearly as large as suggested by the classical conclusion. But note that the implied error is poor consolation for the no-transfer proponents, for they maintained that the burden is always " paid as you go." The error we have uncovered would seem to lie instead in not recognising that a part of the burden of the expenditure is always shifted to the future. This last conclusion, however, is somewhat puzzling and disquieting. And this uneasiness can be easily increased by asking ourselves the following embarrassing question: roughly how large is the coefficient s which determines the unavoidable burden on the future? This question is embarrassing because recent empirical as well as theoretical research on the consumption function suggests that the answer depends very much on the length of time which is allowed for the adjustment. In the long run, the average propensity to save has remained

[1] The need to curtail investment when government expenditure is increased at full employment, even though it is fully tax covered, is the counterpart of the so-called multiplier effect of a balanced budget when starting from less than full utilisation of resources. The tax-financed expenditure *per se* increases the aggregate real demand for goods and services by a dollar per dollar of expenditure. But if we start from full employment, this extra demand could only result in inflation. Hence it must be offset by a fall in investment of s dollars per dollar of expenditure, which, taking into account the multiplier effect, will reduce total demand by $s/s = 1$ dollar per dollar, as required.

[2] This conclusion has also been reached by W. Vickrey, *op. cit.*

pretty constant in the general order of 0·1, meaning that the marginal propensity is of the same order. But the quarterly increase in saving associated with a quarterly increase in income seems to be of a much larger order of magnitude, with estimates ranging as high as 0·5 and even higher.[1] Which is the relevant figure and why? Or does the answer depend on whether we look only at the impact effect of taxation or also at its delayed and ultimate effects? We will argue that this is indeed the case, and that in so far as we are interested in the distribution of the burden over time and between generations, the total effects are paramount.

VII. Impact Versus Total Effects of Deficit and Tax Financing

Let us come back to a comparison of rows (*b*) and (*e*) in Table I, but this time let us concentrate on the effect of taxation on the terminal net worth position of the households. We can see that if the expenditure is debt-financed this terminal position is (at least to a first approximation) the same as if the expenditure had not been undertaken. On the other hand, in the case of tax financing, in addition to the concomitant fall in consumption, we find that saving, and hence the increase in net worth, was also cut down from 200 to 160. What effect will this have on later consumption and saving behaviour?

In order to answer this question we need to go beyond the standard Keynesian emphasis on current flows and try to understand why consumers wanted to add 200 to their net worth in the first place and how they will react when this goal has to be scaled down in response to higher taxes. I have elsewhere proposed some answer to these questions by advancing the hypothesis that saving (and dissaving) is not a passive reaction to income but represents instead a purposive endeavour by the households to achieve a desirable allocation of resources to consumption over their lifetime.[2] However, in what follows we do not need to rely, to any significant extent, on that model or any other specific theory of saving behaviour. All that we need to keep before our eyes is the logical proposition that there are, in the final analysis, only two ways in which households can dispose of any addition to their net worth achieved through current saving: namely, either through later consumption or through a bequest to their heirs.

Now let us suppose at first that the bequest motive is small enough to be neglected and that, as a rule and on the average, each household tends to

[1] See, *e.g.*, the following two recent and as yet unpublished studies prepared for the Commission on Money and Credit: D. B. Suits, "The Determinants of Consumer Expenditure: a Review of Present Knowledge"; and E. C. Brown, R. M. Solow, A. K. Ando and J. Kareken, "Lags in Fiscal and Monetary Policy," Part II.

[2] F. Modigliani and R. Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-section Data," in *Post-Keynesian Economics*, K. Kurihara, ed. (Rutgers University Press, 1954).

consume all of its income over its lifetime. This assumption can be conveniently restated in terms of the notion of the "over-life average propensity to consume" (*oac*), defined as the ratio of (the present value of) life consumption to (the present value of) life resources, and of the "over-life marginal propensity to consume" (*omc*), defined as the ratio of marginal increments in the same two variables. With this terminology, our current assumption is that both *omc* and *oac* are unity. It should be noted that, under reasonable hypotheses about the typical individual life cycle of earnings and consumption, an *oac* of unity for each household is consistent with a sizeable stock of aggregate assets, in the order of several times national income. With a stationary population and unchanged technology—stationary economy—this aggregate stock would tend to be constant in size, implying zero net saving in the aggregate, but it would be undergoing a continuous reshuffling of ownership from dissavers, such as retired persons, to those in the process of accumulating assets for retirement and short-run contingencies. On the other hand, with a rising population and/or technological progress, there would tend to be positive saving and a rising stock; in fact, the ratio of saving to income and of assets to income would tend to be constant in the long run if the above two forces resulted in an approximately exponential growth trend for aggregate income.[1]

Let us now consider the consequences of a non-repetitive increment in government expenditure dG, financed by a deficit, limiting ourselves at first to a stationary economy. Fig. 1 (*a*) illustrates graphically the effects of this operation on aggregate private net worth W, and on the net stock of privately owned capital K. The horizontal dashed line AA represents the behaviour of net worth in the absence of dG. It is constant by our assumption of a stationary economy, implying zero net saving, or gross saving and gross investment just sufficient to offset the wear and tear of the capital stock. If we make the further convenient assumption that there is initially no government debt (and ignore non-reproducible tangible wealth), then W coincides also with K. The incremental expenditure dG is supposed to occur in the interval t_0 to t_1 at the constant rate $dG/(t_1 - t_0)$, and is financed by tapping a portion of the gross saving otherwise devoted to capital maintenance. As a result, between t_0 and t_1 K falls, as shown by the solid curve. But the net worth W remains at the same initial level as the fall in K is offset in the consumers' balance sheet by the government debt of dG. By t_1 the gap between W and K amounts to precisely dG, and thereafter the curves remain unchanged until and unless some further disturbance occurs. The final outcome is that the debt-financed expenditure, by generating a permanent wedge $dG = dD$ between W and K,[2] causes the entire cost of the expenditure to be borne by those living beyond t_1 in the form of a reduction

[1] Cf. A. K. Ando and F. Modigliani, "Growth, Fluctuations and Stability," *American Economic Review*, May 1959, pp. 501–24.

[2] Permanent in the sense that it persists as long as the debt remains outstanding.

in the stock of private capital by dG and in disposable income by $r^*(dG)$.[1] If, in addition, $r^* = r$, then before-tax income will be unaffected and the fall in disposable income will equal the tax collected to pay the interest, as claimed by the classical-burden doctrine.[2]

Consider now the effect of full tax financing of dG, illustrated in Fig. 1 (b). The line AA has the same meaning as before. The impact effect of the tax-financed expenditure—*i.e.*, the effect within the interval t_0t_1—is to reduce consumption by cdG and saving and private capital formation by sdG. Hence, as shown by the solid line, by t_1 both W and K have fallen by sdG. As we had already concluded, this fall in K partly shifts the effect of the expenditure to those living beyond t_1. However, by following up the delayed effect of the tax, we can now show that in this case: (a) the shift of the burden is only temporary, as W, and hence K, will tend to return gradually to the original pre-expenditure level, and (b) the burden transferred to the period following t_1 is borne, at least to a first approximation, entirely by those who were taxed between t_0 and t_1.

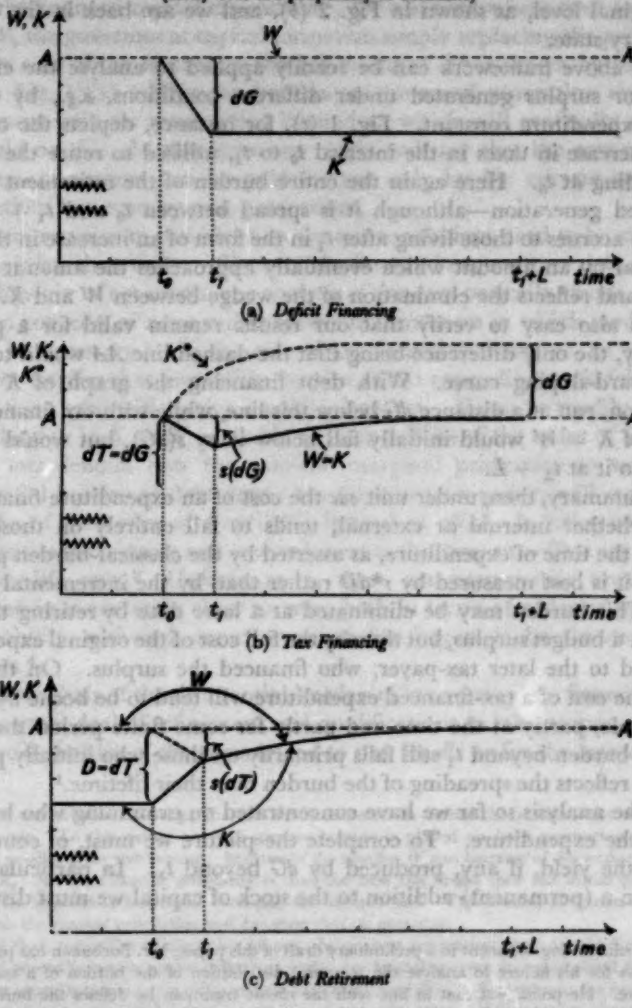
To establish this result we need only observe that since those taxed have suffered a loss of over-life (disposable) income amounting to dG as a result of the tax, they must make a commensurate reduction in over-life consumption. If the consumption is cut initially only by $c(dG)$ the balance of the tax, or $s(dG)$, is financed out of a reduction in accumulation—including possibly borrowing from other households—which at first reduces the net worth at time t_1 by $s(dG)$, but eventually must be matched by a corresponding reduction of consumption over the balance of the life span. Let L denote the length of time until the taxed generations die out. In the interval t_1 to $t_1 + L$, then, the consumption of this group will be smaller relative to its income, and hence its rate of saving will be larger, or its rate of dissaving smaller, than it would have been in the absence of the tax. On the other hand, over the same interval, the income consumption and saving of households who have entered the scene after t_1 will be basically unaffected by the operation. Hence, in the L years following t_1 there will arise some positive saving which will gradually die down as the taxed generation disappears. The precise path of aggregate saving will depend on the way the taxed generation chooses to distribute the reduction of consumption over its life. But, in any event, the cumulated net saving over the entire interval

[1] Actually the fall in disposable income consequent upon the fall in K is likely to give rise to a further fall in W and hence in K, but this indirect effect will tend to be of secondary magnitude. See on this point footnote 1, p. 750.

[2] If the reduction in K results in a significant rise in r^* and hence r, then, as pointed out by Vickrey (*op. cit.*, p. 135), there will tend to occur a shift in the distribution of *pre-tax* income. Labour income will tend to shrink and property income to increase—and, incidentally, this increase will tend to more than offset the fall in labour's earnings. It does not follow, however, as Vickrey has concluded, that the "primary burden of diminished future income will be felt by future wage earners." For the burden consists in the reduction of *disposable* income, and this reduction will depend on the distribution of the taxes levied to pay the interest as between property and non-property income.

FIG. 1

Effect of Deficit and Taxes on Net Worth, W, and Capital, K,
(unity over-life propensity to consume)



t_1 to $t_1 + L$ must come to precisely $s(dG)$, representing the required reduction of consumption relative to income of the taxed generation.[1] This

[1] It may be noted that the cumulated reduction in consumption will tend to be somewhat larger than $s(dG)$ because the taxed generation will also lose some income as a result of the reduction in their wealth, amounting initially to $s(dG)$. However, the cumulated increase in saving over the interval is still $s(dG)$ because the additional loss in consumption just matches the reduction in income from this source. Actually $s(dG)$ measures essentially the *present value* as of t_1 of the required reduction in consumption.

cumulated saving is just sufficient to make up for the initial fall in the stock of $s(dG)$, so that by $t_1 + L$ the stock of capital (as well as W) has returned to the original level, as shown in Fig. 2 (b), and we are back in the original stationary state.

The above framework can be readily applied to analyse the effects of deficit or surplus generated under different conditions, *e.g.*, by varying taxes, expenditure constant. Fig. 1 (c), for instance, depicts the outcome of an increase in taxes in the interval t_0 to t_1, utilised to retire the debt D outstanding at t_0. Here again the entire burden of the retirement falls on the taxed generation—although it is spread between t_0 and $t_1 + L$—and the gain accrues to those living after t_1 in the form of an increase in the stock of capital by an amount which eventually approaches the amount of debt retired and reflects the elimination of the wedge between W and K.

It is also easy to verify that our results remain valid for a growing economy, the only difference being that the dashed line AA would turn into an upward-sloping curve. With debt financing the graph of K would, from t_1 on, run at a distance dG below this line, while with tax financing the graph of $K = W$ would initially fall below it by $s(dG)$, but would tend to return to it at $t_1 + L$.

In summary, then, under unit *oac* the cost of an expenditure financed by debt, whether internal or external, tends to fall entirely on those living beyond the time of expenditure, as asserted by the classical-burden position, though it is best measured by r^*dD rather than by the incremental tax bill rdD. This burden may be eliminated at a later date by retiring the debt through a budget surplus, but thereby the full cost of the original expenditure is shifted to the later tax-payer, who financed the surplus. On the other hand, the cost of a tax-financed expenditure will tend to be borne by society as a whole, partly at the time and partly for some finite period thereafter. But the burden beyond t_1 still falls primarily on those who initially paid the tax and reflects the spreading of the burden over their lifetime.[1]

In the analysis so far we have concentrated on examining who bears the cost of the expenditure. To complete the picture we must, of course, also reckon the yield, if any, produced by dG beyond t_1. In particular, if dG results in a (permanent) addition to the stock of capital we must distinguish

[1] In a stimulating comment to a preliminary draft of this paper, Mr. Buchanan has provided an explanation for his failure to analyse the temporal distribution of the burden of a tax-financed expenditure. He points out that in line with the classic tradition, he defines the burden as the subjective loss of utility suffered by the tax-payer because of the initial loss of resources. The burden in this sense occurs entirely when the tax is levied and the later reduction of consumption cannot be separately counted as burden, as it is merely the embodiment of the original burden. I have serious reservations about the usefulness of this definition. It has, for instance, the peculiar implication that, when as a result of tax financing an heir receives a smaller inheritance or as a result of debt financing he is saddled with a larger tax bill, this cannot be counted as burden on him, as the entire burden is already accounted for in the guise of his father's grief that his heirs will enjoy a smaller net income. It is this peculiar reasoning that underlies Ricardo's famous conclusion that the cost of the government expenditure is always fully borne by those present at the time.

between W, K and K^*, the latter denoting the total stock of private- plus government-owned capital. K^* will exceed K by dG. Thus in the case of a debt-financed capital expenditure, K^* will everywhere tend to coincide with W, the government capital formation simply replacing the private one. For the case of tax financing, the behaviour of K^* is shown by the broken line in Fig. 1 (b). Here the burden on the taxed generation results in a permanent gain for those living beyond t_1, which will gradually approach the yield on dG. In this sense one might well say that the cost of current government services can be paid for not only by the current and future generations but even by past generations.

There remains to consider how far our conclusions need to be modified if the *omc* is less than unity. Since a debt-financed expenditure does not affect the behaviour of net worth, our analysis of this case basically stands, although one can conceive of some rather fancy circumstances in which modifications would be necessary.[1] In the case of tax financing, however, an *omc* of less than one implies that part of the burden of the expenditure will fall on later generations, who will receive a smaller bequest. It can be readily seen that the reduction in $K = W$ available to them will be of the order of $(oms)(dG)$, where *oms* denotes now the over-life marginal propensity to save. The differential burden of debt versus tax financing on society will correspondingly be of the order of $r(omc)(dG)$ instead of rdG.[2] In other words, the propensities to consume and save relevant to the long-run effect are precisely the over-life ones.[3] Unfortunately, these are propensities about which information is currently close to zero, both in terms of order of magnitude and stability, although some attention has begun to be devoted to this question.[4]

Our analysis of the differential burden of tax versus debt financing could stand a great deal of refinement and qualifications to take proper account of the specific nature of the taxes levied to pay for dG or for the interest on the

[1] It is conceivable that, *e.g.*, the tax newly imposed to defray the interest cost might reduce the bequests. To this extent an even greater burden is placed on later generations, which will inherit a smaller K for two reasons: because of the smaller W and because of the wedge dG between W and K. An even fancier possibility is that the new tax might spur the initial generation to increase its bequests to help their heirs pay for the new tax. This would, of course, increase the burden on the current generation and decrease that on posterity.

[2] Note that, regardless of the value of *omc*, the current generation must always fare at least as well, and generally better, under debt than under tax financing, even if it capitalised fully the new taxes that must be raised to pay the interest bill on the new debt. For, even in the highly unlikely event that the amount $r(dD)$ per year necessary to pay the interest bill were levied entirely on the initial generations, as long as they lived, this liability is limited by life, and hence represents a finite stream whose present value must be less than the amount dD which would have been taken away in the case of tax financing. See on this point also footnote 1, p. 746.

[3] Even with an *omc* of less than unity it is likely that the impact of the tax on bequests handed down from one generation to the next would gradually disappear so that W and K would eventually be unaffected by the tax-financed expenditure. But this is in the *very* long run indeed.

[4] See, *e.g.*, J. Tobin and H. W. Guthrie, "Intergenerations Transfers of Wealth and The Theory of Saving," Cowles Foundation Discussion Paper No. 98, November 1960.

debt. But it is clear that these refinements can in principle be handled by proper application of the framework set out in this section. We shall therefore make no attempt at working out a long list of specific cases,[1] and will proceed instead to point out the implications of our framework for a somewhat different class of problems, namely where the change in debt occurs without any accompanying change either in government purchases or taxation.

VIII. "Gratuitous" Increases in Debt, Repudiation and Inflation

For analytical convenience we may start out by considering a case which has admittedly rather limited empirical relevance: namely, where the government debt is increased at some date t_0 by an amount dD by a "gratuitous" distribution of a corresponding amount of bonds.[2] Presumably, at least in this case, the proponents of the classical burden argument, if they apply their reasoning consistently, would have to agree with the proponents of the classical non-burden argument that the increment in the National Debt puts *no burden on the economy as a whole*, either at the time of issuance or thereafter, except for frictional transfer costs. For while it is true that from t_0 on, tax-payers are saddled with extra taxes to defray the interest bill, it is also true that the receipt of interest would not have arisen without the creation of extra debt. Note that this conclusion does not rule out the possibility that the operation may result in some transfer between generations, if by a generation we mean the set of members of the economy born at a particular date: thus the interest accruing to those receiving the gift will very likely be paid, at least partly, by a younger generation. But these are still mere income transfers involving no overall burden.

But once we recognise that the overall burden of the National Debt derives from its effects on the private stock of capital, then it becomes clear that, by and large, both classical doctrines agree with the wrong conclusion. This is indeed quite obvious in the case of a unity *oac*, a case illustrated graphically in Fig. 2 (*a*). The solid line *AA* shows as usual the behaviour of $W = K$ in the absence of the gift. For the sake of variety, we deal here with a growing economy with positive saving and rising wealth.[3] If the gift is distributed all in one shot at point t_0, then at that point W will rise by dD, with no change in K. But now between t_0 and $t_0 + L$ the members of the generation that received the gift will gradually dispose of the bonds (or of other assets that they may have exchanged against the bonds) by selling them to current savers and using the proceeds to increase consumption over what it would have been otherwise. As this takes place, the aggregate

[1] By so doing we are also deliberately by-passing the other major issue of fiscal policy, that of the distribution of the burden between income classes.

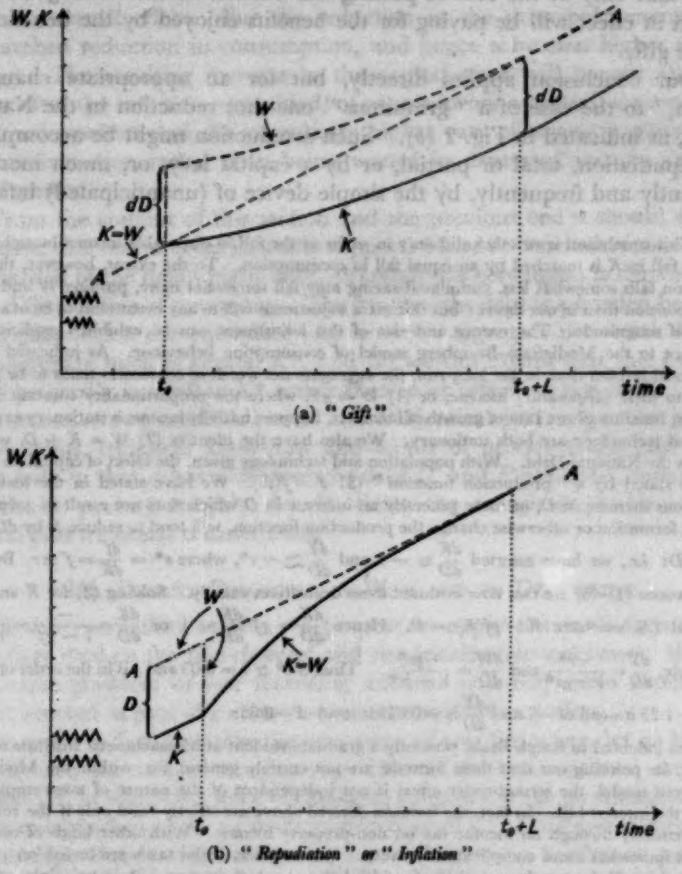
[2] In order to avoid side issues, we will assume that the coupon rate on these bonds is such as to make their market value also equal to dD, and that no change occurs in the government purchase of goods and services, G.

[3] Just for reference, we may note that according to the Modigliani–Brumberg model, if income were growing at approximately exponential rate, W would be growing at the same rate.

rate of saving, and hence the accumulation of net worth and capital, is reduced. The result is that W gradually approaches the base path AA, while K, which is always lower by the wedge dD, falls below it. By $t_0 + L$

FIG. 2

Effect of "Gratuitous" Changes in Debt on Net Worth, W, and Capital, K, (unity over-life propensity to consume)



the cumulated rate of saving and physical capital formation will have been reduced by (approximately) dD, so that W will tend to coincide with AA and K to be dD lower, a position that will tend to be maintained thereafter. Thus an increase dD in the National Debt, even if it arises from a free gift, will put a burden on the economy as a whole. Under unity *oac*—after a transient period in which W is increased as a result of the gift—this burden

will approach the level $r^*(dD)$, and hence approximately equal the interest on the debt.[1]

If the *omc* is less than unity, then the burden will be smaller, tending to $(omc)(r^*dD)$, because the gift will tend to increase W "permanently" by $(oms)(dD)$ and hence K will tend to fall only by $(omc)(dD)$. As usual, this burden can be removed at any later point by taxation and retirement of the debt, but only at the cost of putting the burden on the taxed generation, which in effect will be paying for the benefits enjoyed by the beneficiaries of the gift.

Our conclusion applies directly, but for an appropriate change of "sign," to the case of a "gratuitous" one-shot reduction in the National Debt, as indicated in Fig. 2 (*b*). Such a reduction might be accomplished by repudiation, total or partial, or by a capital levy, or, much more importantly and frequently, by the simple device of (unanticipated) inflation.

[1] This conclusion is strictly valid only in so far as the fall in disposable income brought about by the fall in K is matched by an equal fall in consumption. To the extent, however, that consumption falls somewhat less, cumulated saving may fall somewhat more, pushing W and K to a lower position than in our figure: but this extra adjustment will in any event tend to be of a second order of magnitude. The nature and size of this adjustment can be exhibited explicitly with reference to the Modigliani–Brumberg model of consumption behaviour. As indicated earlier, this model implies that, in the long run, the aggregate net worth of consumers tends to be proportional to their (disposable) income, or (1) $W = gY$, where the proportionality constant is a decreasing function of the rate of growth of income. Suppose initially income is stationary as population and technology are both stationary. We also have the identity (2) $W = K + D$, where D denotes the National Debt. With population and technology given, the effect of capital on income can be stated by a "production function" (3) $Y = f(K)$. We have stated in the text that a gratuitous increase in D, or more generally an increase in D which does not result in government capital formation or otherwise change the production function, will tend to reduce K by dD and Y by r^*dD: *i.e.*, we have asserted $\frac{dK}{dD} \simeq -1$ and $\frac{dY}{dD} \simeq -r^*$, where $r^* = \frac{df}{dK} = f' \simeq r$. By means of equations (1)–(3) we can now evaluate these derivatives exactly. Solving (2) for K and using (1) and (3) we have $K = gf(K) - D$. Hence $\frac{dK}{dD} = gf'\frac{dK}{dD} - 1$ or $\frac{dK}{dD} = \frac{-1}{1-gf'} = \frac{-1}{1-gr^*}$. Similarly, $\frac{dY}{dD} = \frac{-r^*}{1-gr^*}$ and $\frac{dW}{dD} = \frac{-gr^*}{1-gr^*}$. Thus, if $r^* \simeq r = 0{\cdot}05$ and g is in the order of 4, then $\frac{dK}{dD}$ is $-1{\cdot}25$ instead of -1 and $\frac{dY}{dD}$ is $-0{\cdot}625$ instead of $-0{\cdot}05$.

I am indebted to Ralph Beals, presently a graduate student at Massachusetts Institute of Technology, for pointing out that these formulæ are not entirely general, for, within the Modigliani–Brumberg model, the second-order effect is not independent of the nature of taxes employed to defray the interest bill. In fact, the formulæ derived above are strictly valid only if the revenue is raised entirely through an income tax on non-property income. With other kinds of taxes, one obtains somewhat more complicated formulæ. For instance, if the taxes are levied on property income this will depress the net yield of wealth below r, which in turn will, in principle, affect the proportionality constant g of equation (1). However, exploration of several alternative assumptions suggests to me that the outcome is unlikely to be appreciably different from that derived above, at least in the case of direct taxes.

It can also be shown that the above formulæ will tend to hold, at least asymptotically, for an expanding economy in which population grows at an approximately constant rate and/or so does productivity as a result of technological change which is neutral in Harrod's sense (*cf. Toward a Dynamic Economics* (Macmillan, 1949), p. 23). The main features of such a growth model are discussed in Ando and Modigliani, *op. cit.*

Thus a (once and for all) doubling of the price level is entirely equivalent to a repudiation of one-half of the National Debt at the original price level—although it has, of course, all kinds of other widespread economic effects. As far as the National Debt is concerned, this operation puts a burden on the owners of the bonds by reducing the real value of their interest income as well as the real value of the principal. In so far as the first effect is concerned, we have a mere transfer from the bond-holders to the tax-payers, with no overall effect. But the reduction in the principal generates an unmatched reduction in consumption, and hence a *transient* higher rate of saving. The resulting increase in the capital stock will benefit all those living after the inflation—provided, of course, private capital has a positive marginal product and the potentially higher rate of saving is utilised for capital formation rather than being wasted in depressed income and unemployment.

From the content of this section and the previous one it should also be apparent that our analysis basically supports Meade's conclusion concerning the burden of the deadweight debt, although this conclusion is derived by a very different line of reasoning. The deadweight debt is a burden because: (*a*) it generates a corresponding gap between aggregate net worth W and the aggregate stock of capital K^*, and (*b*) we can expect that this gap will result primarily in a fall in K^* rather than in an offsetting rise in W. Thus, if we conceive two communities A and B identical with respect to natural endowments, technical know-how and habits of private thrift, and which differ only in that A has a deadweight debt D' and B has none, community A will be poorer, roughly, by D' times the marginal productivity of capital plus frictional transfer costs.

IX. Deficit Financing in War and in Depression

In this concluding section we propose to apply our tools to see what light they shed on the two classical and empirically relevant issues: the pre-Keynesian problem of war financing and the post-Keynesian problem of deficit created as part of a counter-cyclical stabilisation policy.

In order to face squarely the core issue of war financing, let us be concerned with the case of a major war effort of the type outlined earlier in Section III, in which the stock of capital in existence at the termination of the war is independent of the methods used to finance it. It follows immediately that, independently of financing, the war will impose a burden on post-war society as a whole to the extent that the stock of capital in existence at its termination—counting only whatever portion is useful to satisfy the post-war requirements—is less than what would have been there in the absence of war. In order to examine the residual effects, if any, of methods of financing, we must suppose that, in spite of the war's severity, we have some choice as to the extent of taxation. Also, to keep separate for the moment the possible role of inflation, we must suppose that untaxed income in excess of the pre-

determined consumption level is prevented from bidding up the price of goods—whether through voluntary abstention or through a fully successful system of rationing. In these conditions the unspent income must result in an increase in government debt held by the private sector, either directly or through financial intermediaries. Thus the level of taxation versus deficit financing determines essentially the size of the increment in government debt, dD. Now suppose, for the sake of the argument, that the war had been entirely financed by taxes, dD being accordingly zero. It then follows from our earlier analysis that the burden of the war will be borne almost entirely by members of the war generation. For, in addition to the sacrifice of consumption and other amenities *during* the war, they will also bear the brunt of the reduced capital stock, their accumulation of net worth being limited to the permitted privately financed capital formation. Thus the burden falling on society as a whole after the war will fall primarily directly on the members of the war generation (affecting others only to the extent that the reduction in the stock of capital reduces total income by more than the return on capital). They will be forced after the war to maintain a reduced level of consumption over the rest of their life, tending to save heavily in their remaining earning span and to dissave at a greatly reduced rate thereafter. This behaviour in turn will produce, after the war, an abnormally large rate of aggregate saving, gradually declining with the disappearance of the war generation. As a result, by the time the war generation has disappeared, the war-time reduction in capital formation may have been substantially made up—this being more nearly true the closer the oac is to unity and the smaller the initial loss of capital.

If, on the other hand, through lower taxes the war generation is permitted to increase its terminal net worth by an additional amount dD, the effect, with respect to the present issue, is essentially the same as though at war's end it had been handed down gratuitously a corresponding amount of government bonds.[1] As usual, this will enable them to maintain a higher post-war consumption, reducing capital formation, by an extent that can range as high as dD, if the oac is unity. Thus the debt financing will generate both: (i) a transfer from the post-war to the war generation to the extent of taxes levied on the former to pay interest to the latter, and (ii) a permanent burden on society as a whole to the extent that the stock of capital is permanently reduced by dD—less any increase in W resulting directly from dD.[2] In so far as in the immediate post-war period the

[1] If the bonds issued during the war carried an exceptionally low rate of interest because of the monopoly position of the Government in the market the gift in question should be regarded, for present purposes, as represented by the market value of the bonds.

[2] Note that the incremental debt dD could be regarded as a burden on society even if the economy tended to suffer from long-run stagnation, *i.e.*, a chronic tendency for a very low or zero marginal productivity of capital. For while it is true that the larger consumption bestowed on the war generation would help to sustain consumption, and thus full employment, the same result could be achieved by reducing the taxes and expanding the consumption and saving of whoever was present at the appropriate later time.

Government, to speed up the reconstruction, pushes capital formation by raising taxes and creating a surplus, the long-run effect is eliminated. But the burden of debt financing is placed to that extent on those living in the relevant post-war period, which may again consist in part of the very same war generation.

If inflation is permitted to develop in the course of the war or immediately following it our analysis remains valid, provided the increment in the debt is measured in real, rather than money, terms. This net real increment can be expressed as $\frac{D_0 + dD}{1 + dP} - D_0$, where D_0 is the pre-war debt and dP is the relative increase in the price level in the course of the war inflation. The above quantity, it will be noted, may even be negative if $dP > \frac{dD}{D_0}$, *i.e.*, if the increase in prices exceeds the relative increase in the debt. In this case the war generation will be made to carry even more than the cost of the war (unless its plight is improved by post-war transfers of income); and later generations may conceivably end up by benefiting from the war, at least following the transient period of high saving rates and rapid capital accumulation. Perhaps the picture we have been drawing has some relevance for an understanding of the post-war experience of such countries as Germany, Italy and Japan.

It seems hardly necessary to point out that our analysis in no way implies that in financing a war the use of debt should necessarily be minimised. Quite aside from obvious incentive considerations, there may be perfectly good equity reasons for lightening the burden of the generation that suffered through the war by granting them a more comfortable life after the war, at the expense of later generations.

We come finally to the effects of debt generated as a counter-cyclical measure. In view of the complexity of the problem, we shall have to limit ourselves to a sketchy treatment of a limited class of situations. Our main concern is to show that, even in this case, debt financing, though quite advantageous to the current generation, will generally not be costless to future generations, at least in terms of gross burden.

Consider a situation where, in spite of the easiest possible monetary policy and with the whole structure of interest rates reduced to its lowest feasible level, the demand for private capital formation is inadequate to absorb full-employment saving with a balanced budget. But let us suppose that the situation can be counted upon to be temporary and not to recur for a long time to come. If the Government does not step in there will be a temporary contraction of employment accompanied by a contraction of consumption and of addition to net worth, which is limited to the amount of private capital formation. Suppose, on the other hand, the Government expands its expenditure to the extent needed to fill the deflationary gap, and thereby runs into a deficit dD. Let us also imagine that it succeeds in

choosing its action perfectly so as to maintain full employment without inflation. Hence consumption will be kept at the full-employment level and so will the accumulation of net worth; except that this accumulation will now take the form of an addition to the National Debt to the extent *dD*. Thus the government action involves a current gain to society which can be measured by the income which would have been lost otherwise. What we wish to know is whether this gain places any cost on later generations (and if so, how it can be valued).

Under the assumed conditions the answer would have to be affirmative at least under unity *oac*. In this case, in fact, we can see that the cost which was spared to society would have fallen entirely on the members of the depression generation. They would have been forced over their lifetime to cut their consumption by an amount (whose present value is) equal to the lost income. This reduction would be distributed partly within the depression but partly *after* the recovery, to an extent equal to the loss in accumulation of net worth in the depression. This reduction of consumption would in turn give rise to a somewhat higher rate of capital formation after the recovery, so that by the time the depression generation disappears the stock of capital would tend to be back to where it would have been without depression. In other words, under the assumed conditions failure of the Government to act, though costly to the depression generation, tends to be costless to later generations. On the other hand, if the Government acts, the depression generation does not have to maintain a lower consumption after the recovery, and accordingly, the lost private capital formation during the depression is never made up. The creation of *dD* introduces again a corresponding wedge between *W* and *K* which will tend permanently to reduce the amount of physical capital available to future generations. Hence there is a loss to them to the extent that at later points of time an increment to the stock of capital would make any net positive addition to output. If the debt is never meant to be retired, then at least with well-functioning capital markets, the consol rate, being an average of anticipated future short rates, may provide at least a rough measure of the (appropriate time average) annual loss. And in this sense if the Government borrows long, the interest bill on the incremental debt may provide a rough measure of the average future (gross) burden placed on society as a whole.[1]

Once more, recognising that the government action may involve a gross cost to future society does not imply that the action should not be taken. In the first place, because of multiplier effects the gain in income to those present is likely to be appreciably larger than the lost stock of capital

[1] Of course, under our present assumptions the burden as measured by the opportunity cost will be essentially zero during the period in which the debt is created, regardless of whether it takes the form of long-term debt, short-term debt or currency creation. But in the last two cases the current interest cost will not appropriately reflect the average future burden, unless we also take into account the rate the Government will have to pay on bonds sold at later points of time to refinance the short-term debt or to reduce the money supply in order to prevent inflation.

which approximates the present value of the sacrificed income stream. In the second place, if the Government spends on projects which produce a yield in the future, then the gross burden will be offset by the gross yield and the net outcome may even be positive. In the third place, the gross burden can be eliminated if at some future point of time the Government runs a surplus and retires the debt. It is true that this will tend to place the burden of the original deficit on those who pay the taxes financing the surplus. But if the surplus follows the deficit in short order these people will be, to a large extent, the very same ones that benefited from the original deficit; thereby the questions of inter-generation equity are minimised. The case for eradicating the deficit with a nearby surplus is, of course, strongest if the government expenditure provides nothing useful for the future, or if the deficit reflects a reduction in the tax bill, expenditure constant, resulting either from built-in flexibility arrangements or from *ad hoc* tax rebates. Thus, our analysis turns out to provide a strong case in favour of what used to be called the cyclically balanced budget.

Although we cannot pursue further here the complex issues raised by the burden aspects of counter-cyclical fiscal operations, we hope to have succeeded in showing how the tools we have developed may provide some insight into the problem. One point should be apparent even from our sketchy treatment: namely, that in so far as counter-cyclical fiscal policy is concerned, our analysis does not require any significant re-evaluation of currently accepted views. Yet, by reminding us that fiscal operations involve considerations of inter-generation equity even when used for stabilisation purposes, it may help to clarify some issues. It does, for example, establish a *prima facie* case, at least with respect to *ad hoc* measures as distinguished from built-in stabilisers, for a course of action that will minimise the " deadweight " deficit and stimulate investment rather than consumption.[1] More generally, considerations of inter-generation equity suggest the desirability of a compromise between the orthodox balanced-budget principle and the principle of functional finance, which might be couched roughly as follows: as a rule, the Government should run a " deadweight " deficit only when full-employment saving exceeds the amount of capital formation consistent with the most favourable feasible monetary policy; and it should run a surplus, in so far as this is consistent with full employment, until it has wiped out previous deficits accumulated in the pursuance of this policy.

FRANCO MODIGLIANI

Northwestern University,
Evanston, Illinois.

[1] These considerations, *e.g.*, cast some doubt on the desirability of relying on personal tax cuts explicitly announced to be but temporary. For there is at least some ground for supposing that the temporary nature of the cut will tend to reduce the desirable impact effect on consumption and increase instead short-run saving and the (possibly) undesirable delayed consumption.

THE OPTIMAL GROWTH PATH FOR AN UNDERDEVELOPED ECONOMY[1]

In the course of practical planning in underdeveloped countries there arises at some point the question of what the rate of saving should be. This may be, and probably usually is, solved by pushing it as high as is politically feasible. As an answer this indicates a serious theoretical lacuna, apart from other more concrete shortcomings. The rate is ordinarily much too low and can only be raised gradually. But how rapidly should it be raised and how high? Should the savings rate continue to rise, level off or even ultimately be reduced? As time passes the policies become easier to carry out, but the prescriptions become more disputable. A related question is "In what proportion should net capital formation be divided between capital goods industries and consumer goods industries," and it was discussed in this form in the early days of planning in the U.S.S.R. Increasing capital-goods capacity has great attractions, since machines to make machines involve growth in a way that machines to make, say, textiles do not. In fact, it is not difficult to show that by putting more capital into capital goods, consumption will ultimately benefit, even though at first it will be reduced; *i.e.*, by shifting resources from the one to the other we will at first have less, and then later more consumption, in perpetuity, than if we did not. Yet this proves too much, because then we can *always* use promised future consumption as a reason for not consuming now, which does not provide a satisfactory basis for policy.

Ignoring all non-economic factors, we may proceed directly to the question: amongst those paths of economic growth which are possible, which is the best? The answer is not as simple as the question, nor is it likely to be attainable in practice, even if we can define it. Yet it does seem helpful to have a clear picture of the optimal time shape as a guide to the directions in which policies may be modified.

I

To discuss this problem in all its generality, we must proceed at a drastically unreal level of abstraction. I shall assume the economy is completely planned, the planners taking the long view in the sense that they give equal weight to all events from now to a specified future date. Consumption is held to be the sole aim of economic activity. All consumption is equally desirable regardless of when it occurs (*i.e.*, any subjective time preference is explicitly rejected). The planners consider only consumption per head, thus ignoring any inequalities as well as, by implication, holding growth in numbers to be, by itself, no gain. Optimal growth is

[1] The substance of this paper was originally presented to the Oxford–London–Cambridge Seminar on November 10, 1956.

defined as the maximum of welfare over a finite period, welfare being taken as *per capita* consumption valued in some manner.

The labour force is growing at a given and constant rate. For realism it seems best to start with a considerable excess of labour, though this is not essential, since initially unemployment increases in realistic conditions. Capital goods are consequently the only scarce factor.

The problem is to transform an economy characterised by the Old, low-productivity techniques into one consisting entirely of the New, high-productivity techniques. Therefore we have two distinct economies, though they contribute jointly to the common pool of real national product and they share the common inputs. Purely for simplicity the Old sector is assumed, to begin with, to remain constant in output, employment and capital. Hence in the early years the economic surplus comes from the output of the Old sector, and is ploughed back solely into the New. The resulting increases in output gradually make possible increasing accumulation, which will be coming in ever-greater proportion from the New sector. The Old sector is held constant until general unemployment ceases, and then the labour and (more doubtfully) the capital are rapidly transferred to the New. In reality both labour force and capital would be gradually run down by non-replacement during the whole process.

Throughout the whole period each technique remains unchanged in the sense of maintaining constant average capital–output and labour–output ratios. Again solely for simplicity the capital–output ratio is taken to be the same for the two sectors. There is no question of diminishing returns, in spite of an awe-inspiring accumulation of aggregate capital relative to total labour, since capital, output and employment all expand in strict proportion in the New sector. We have thus a model with no technical change but rather a rise in the relative importance of the high-productivity as compared with the low-productivity sector. This corresponds to the fact that there is already available to underdeveloped economies a range of techniques which, when fully used, will vastly increase their average productivity. Should unforeseen new techniques become available during the change-over, the remainder of the process can be replanned, taking account of these new techniques. We are thus explicitly ignoring the question of whether or not the kind of techniques chosen should conform to the stage of development, a question which is of a higher order of sophistication and difficulty. This gives us an upper limit to the period over which we can, with this model, do our maximising. When sufficient capital goods of the New variety have been accumulated to provide employment for all the unemployed, all the accretions to the labour force, and finally, all those now employed at the Old techniques, then the change-over model ceases to be applicable. Since such a gigantic task is as much as, and indeed more than, any underdeveloped economy is likely to take explicit account of, it seems reasonable to take this period as the duration of time over which

welfare is to be maximised. The maximising period may be taken as shorter than this or longer, but in the latter case a second model must be used for the period after full employment under the New techniques.

In the interest of simplicity, foreign trade, loans and gifts are all ignored, although much of the surplus extracted from the Old industry must be exported to acquire the capital equipment that it cannot produce. The Government is entirely ignored, though some account of its activities is allowed for by taking an unusually high capital–output ratio. Intentionally I have not considered the possibilities of putting the unemployed to work with the Old techniques. The extent to which this can be done will vary so much from country to country that it seems little can be said about it in general. Also it poses no issue in the sense that the more it is done, in such a way as not to decrease the surplus available, the better, since it will increase growth and raise living standards now and/or in the future.

Leaving on one side any possibilities of increasing output through absorption of unemployment, the problem becomes one involving in an essential way inter-personal and inter-temporal comparisons of welfare, and as such involves an inescapable value judgment. Each act of investment involves an asymmetrical exchange of consumption now for output and possible consumption in the future. The simple comparison of pairs of dates will not do, because less consumption now means more output later, which is not simply comparable with consumption now. We have in turn to take the future added output and compare consumption then with consumption at other still more future dates. The problem must be solved in one act; it cannot be dealt with bit by bit. The planners therefore require an unequivocal and quantitative set of valuations for various levels of consumption at different times. By our assumptions the scale of evaluation must be the same for all different times. The term utility is used to describe the unique scale of valuation and carries no other meaning. Given the technical possibilities, the planners can, by varying the time pattern of investments, vary the time pattern of consumption per head. If the planners have a quantitative and unambiguous set of valuations of consumption, then by comparing the sum of valuations for any two situations possible, they can always decide which is better. All possible variations must be tried until a time shape of consumption per head is found from which no possible variation will produce a positive net change in valuation. Some consolation for such heroic assumptions may be found in the fact that any industrialisation programme inescapably involves such valuations. It is surely better to make the basic valuation explicit, and hence consistent, than to leave it unstated and arbitrary.

II

Accordingly, we write for the labour force

$$l = l_0 e^{\alpha t}$$

where l_0 is the initial labour force and α its given rate of growth. The labour force is taken to stand for the whole population, with an average number of dependants for each labourer. Also let

$$z = c/l$$

where c is aggregate consumption and z that of the average or typical individual. Where no confusion can arise, z is referred to simply as consumption. To this consumption some sort of evaluation must be applied, because the transformation of the economy will make further increases in consumption progressively less urgent and hence less valuable. Therefore we define utility, u, as the valuation or weight put on consumption by decision of the state or the planners, and

$$u = \phi(z)$$

The planners must find amongst all possible $z(t)$'s, the one which will maximise the sum of these u's. z is constrained by the limits of realisable output (capacity as determined by capital), by the inevitable growth of labour and, finally, by the basic contradiction that only by restraining z can it later, by capital accumulation, be increased.

There is an essential time lag between investment decisions, the actual outlay on investment and the added output available from the resulting capacity. To simplify a complex matter, I shall assume that on the average the money is all spent at a point midway between the beginning and fruition of a project. All other lags are taken as negligible by comparison. As a unit period therefore, I take half the average time between the initial decision and the effective operation of the capacity. A 2-year period giving an average time of 4 years construction would seem to be a realistically long lag.

By virtue of the assumption that we are making, *i.e.*, a scale expansion of an unchanged New set of techniques, we may assume a constant capital-output ratio σ. The economy being planned, we may assume that output, y, is always at full capacity, and thus equal to k/σ, where k is the quantity of capital. Our fundamental constraints are then given by

$$\begin{aligned} y_t &= k_t/\sigma \\ y_t &= c_t + k_{t+1} - k_t \\ u &= \phi(c_t/l_t) \\ l &= l_0 e^{\alpha t} \end{aligned}$$

Substituting the first equation into the second, and that in turn (together with the fourth equation) into the third, we get utility as a function of capital and time,

$$u = \phi\left(\frac{(1 + 1/\sigma)k_t - k_{t+1}}{l_0 e^{\alpha t}}\right)$$

The planners' problem is to find that $k(t)$ which will render stationary, from the initial period to the final one, f, the finite sum

$$\sum_{t=0}^{f} u_t(k, t)$$

For this

$$\sum_{0} \phi'_t(z_t)dz_t = 0$$

is a necessary condition.

Now $$dz_t = \frac{(1 + 1/\sigma)dk_t}{l_t} - \frac{dk_{t+1}}{l_t} - \frac{c_t dl_t}{l_t^2}$$

But $dl_t = 0$, since no change in c or y will change l. Hence our necessary condition becomes

$$\sum_{0} \phi' \left[\frac{(1 + 1/\sigma)dk_t}{l_t} - \frac{dk_{t+1}}{l_t} \right] = 0$$

The typical term in this series is

$$\left[-\frac{\phi'_{t-1}}{l_{t-1}} + \frac{\phi'_t}{l_t}(1 + 1/\sigma) \right] dk_t$$

Because we are free to choose our dk_t's we can only ensure a zero sum for all possible variations in the dk's by requiring all of the coefficients to be zero. If we can find a time series for k which will nullify all these coefficients, then no small alteration of that time series will increase or decrease the sum. This, then, will be the stationary solution we seek. Whether it is a maximum, a minimum or a saddle point must be ascertained by further inspection.

Hence, $$\phi'_t/l_t - \phi'_{t-1}/l_{t-1} = -\frac{1}{\sigma}\phi'_t/l_t$$

or $$\Delta(\phi'_t/l_t) = -\frac{1}{\sigma}\phi'_t/l_t$$

This is the fundamental relationship which the planners must follow. I shall call it Ramsey's Rule after its discoverer [1] (though here it appears slightly disguised due to l_t and the staggering of its lagged effects). Given the fact that the labour force grows at a constant rate, we may write the result as

$$\phi'_t = \left(\frac{1 + \alpha}{1 + 1/\sigma} \right) \phi'_{t-1}$$

Thus we get a simple first-order homogeneous difference equation with a constant coefficient, the solution to which is

$$\phi'_t = \phi'_0 \left(\frac{1 + \alpha}{1 + 1/\sigma} \right)^t$$

[1] Economic Journal, December 1928.

so that even without knowing anything about our valuation function we know how its marginal value must behave throughout the whole process. From this it follows that, to obtain a solution, we do not need an explicit mathematical utility function. We may use any marginal utility function whatsoever, including simply a table of associated values of standard of living and valuation, derived from any empirical source or posited as a set of value judgments. It must, of course, be possible to interpolate between any readings, so that for any ϕ' we can always find the corresponding z. After plotting $\phi'(z)$, erect a straight line, A, with the slope $\frac{1+1/\sigma}{1+\alpha}$ and a 45° line as in Fig. 1. Given any initial value z_0, we get, by descending steps

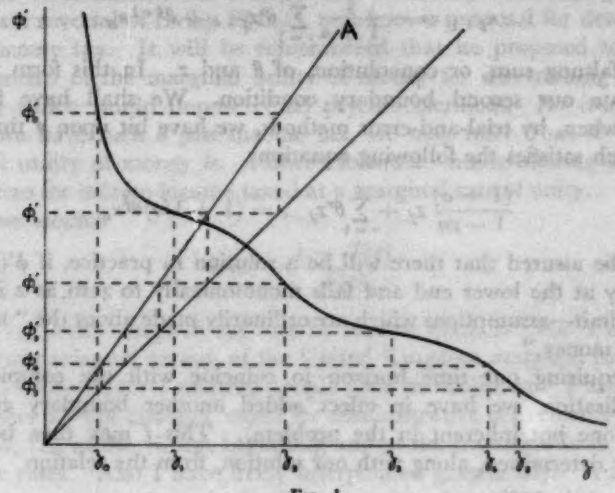


FIG. 1

between the two straight lines, the successive values of ϕ' for all future periods. This determines z_t from the ϕ'. z_0 is not, of course, given, but must be found from the solution to the whole problem.

We have $$\frac{k_{t+1}}{l_t} = (1 + 1/\sigma)\frac{k_t}{l_t} - \frac{c_t}{l_t}$$

If we write κ_t for k_t/l_t and remember that $l_{t+1} = (1 + \alpha)l_t$, we get

$$\kappa_{t+1} = \frac{1 + 1/\sigma}{1 + \alpha}\kappa_t - \frac{1}{1 + \alpha}z_t$$

In order to make the problem determinate we must specify two given boundary conditions (in addition to l_0 and f). Obviously one of these is k_0 (and hence y_0). The second cannot be Δk_0, since that is one of the variables we wish to solve for, nor can it be y_f, since we can get high values of z by disinvestment at the end, but this makes no economic sense. Hence the

best choice seems to be a given final rate of investment, which will safeguard the future of the economy. Therefore the planners must choose some satisfactory final growth rate, $1 + v$. The boundary conditions are then given by k_0 and

$$k_{f+1} = (1 + v)k_f$$

or

$$\kappa_{f+1} = \frac{1 + v}{1 + \alpha}\kappa_f$$

The f must be chosen so that it is less than or equal to the time at which industrialisation has been completed by the equipping of the whole labour force with the New techniques. Writing θ for $(1 + 1/\sigma) \div (1 + \alpha)$, the solution is

$$\kappa_{f+1} = -\frac{1}{1 + \alpha}\sum_{\tau=1}^{f} \theta^{\tau} z_{f-\tau} + \theta^{f+1}\kappa_0$$

i.e., the faltung sum, or convolution, of θ and z. In this form we may incorporate our second boundary condition. We shall have found a solution when, by trial-and-error methods, we have hit upon a time series of z_t which satisfies the following equation:

$$\frac{(1 + \sigma)}{1 - v\sigma} z_f + \sum_{\tau=1}^{f} \theta^{\tau} z_{f-\tau} = (1 + 1/\sigma)\theta^{f}\kappa_0$$

We can be assured that there will be a solution in practice, if $\phi'(z)$ tends to infinity at the lower end and falls monotonically to zero as z increases without limit—assumptions which are ordinarily made about the " marginal utility of money."

By requiring our time horizon to coincide with the completion of industrialisation, we have in effect added another boundary condition (though one not inherent in the problem). This f may then be simultaneously determined, along with our solution, from the relation

$$\kappa_f = \varepsilon_N \sigma$$

where ε_N is the labour productivity of the new techniques. To determine z_0 and f by these relations is laborious but practicable. The severity and perversity of our conditions completely determine the nature of the solution. Poor generations are being asked to impoverish themselves in order to enrich later, richer generations. It is only within narrow limits that the productivity is sufficiently great to justify what is, after all, inter-temporal exchange the wrong way round. The later generations should subsidise the earlier, but because of the reality of the irreversibility of time, this cannot happen (if we exclude borrowing from abroad). We have so to choose our initial standard of life that the fall in the worth of goods will be balanced against the increasing abundance. For a poor community, we must begin high enough up on the marginal worth curve, so that z needs scarcely to increase at all whilst bringing down the worth of goods rapidly. This then allows the massive accumulation of capital which will permit of

the required rapid growth of z in the flat tail of the curve later on. Exactly how this works out depends on the surplus above subsistence available at the start, the capital–output ratio, the population growth and the length of our time horizon, f. To simplify matters we may reverse the logic and try various likely z_0's, in each case working out the implied optimal process until the rate of growth of output is cut back to our required terminal growth rate. Proceeding this way, we can always find a z_0 which will result in our required terminal growth rate at that point in time when we have completed industrialisation.

The planners may determine the marginal utility curve in any way or may accept any sort of directive about it. Purely for illustrative purposes I propose to determine an "empirical" curve by committing a quite illegitimate reversal of Irving Fisher's well-known proposal for determining a just income tax. It will be remembered that he proposed to use his measurements of the marginal utility of money for determining that tax structure which would impose equal psychic sacrifices. *Per contra*, if we assume we have such a just income tax, we may infer from it what the marginal utility of money is. Fisher's formula [1] needs altering so that it goes to zero for infinite income taxed at a marginal rate of unity. This will be so if we assume

$$\phi'(z) = \frac{1 - T(z)}{T(z)}$$

where $T(z)$ is the marginal tax rate by income class, z. For $T(z)$ I shall take a freely adapted version of the United Kingdom marginal income-tax schedule, 1953–54, for a married couple with two children. I assume that some rather abrupt changes, made for administrative convenience, may be smoothed, *i.e.*, at the abrupt beginning and at the transition from standard to surtax rates. Also I have freely interpolated graphically. A zero rate, and hence an infinite marginal utility, is assumed at £375 with a smooth transition to the actual rate of 0·20 for £725.

The best way to see the problem and its solution is to take a specific example. All rates are given in annual terms, but last in each instance for two years (and are most easily calculated in biennial rates). The hypothetical community has a labour force of 10, of which only $6{\cdot}5 = v$ are really essential and $3{\cdot}5 = u$ are in some sense unemployed. Initial output is 100, so that crude productivity is 10. True productivity, ε_A, is 15·4. The labour force is rising at 2% per year. The initial standard of living, z_0, will be near the crude productivity, but it must not be greater than 9·3, or else there is no possibility of industrialisation, since capital per man will be falling. Assuming that there is little "free" surplus, we may take the minimum of subsistence to be $\bar{z} = 9{\cdot}15$. This minimum may be physical,

[1] "A Statistical Method for Measuring 'Marginal Utility' and Testing the Justice of a Progressive Income Tax," in *Economic Essays in Honour of John Bates Clark*, p. 186.

or moral, or political, but it is a very real thing in that it is that level below which the standard of living may not, under any circumstances, be pushed by a rational planner. To translate our hypothetical psychic income evaluation for the United Kingdom into one appropriate to our impoverished community, we simply equate £375 to 9·15. The capital–output ratio is taken to be $\sigma = 3{\cdot}5$ years, which is rather higher than usual but may be held to allow for the fact that, since we are omitting any government accounts, some development expenditure not usually classified as investment will be included. The Old and the New capital–output ratios are taken to be equal. Being in a planned economy, output is throughout taken as using full capacity. Therefore $k_0 = 350$. The New labour productivity is $\varepsilon_N = 125$, about eight times the Old, which is broadly realistic. When the change-over is completed, capital per labourer will be $\kappa_f = \varepsilon_N \sigma = 438$. The terminal growth rate required is 5% per year, but it must not be expected that we can achieve exactly this over a period as long as the last two years. It is in fact brought to 6·5%, but would have become negative in the next biennial period. For the final period I have simply inserted the amount of consumption which would give a 5% growth in the succeeding period. None of these data are empirical nor do they apply to any country. But they are, I think, of the right order of magnitude, and thus constituted, we have a " real " as opposed to an imaginary problem.

Given these structural conditions and boundary values, we seek that initial level of consumption, z_0, which will lead to complete industrialisation with the required terminal growth. If we set $z_0 = 9{\cdot}17$ the progress will be carried out optimally in approximately 38 years. The detailed behaviour over the whole change-over is given in Table A, and the most important control factors in Fig. 2.

The general nature of the policy prescription is clear—severe restraint on consumption for the larger part of the period and full relaxation towards the end. Such a policy is a rational consequence of the advantages of exploiting the technological possibilities. The harshness towards the present generation results in spite of giving exactly the same weight to its desires as to those of future generations. So great are the gains that we are fully justified in robbing the poor to give to the rich! The considerable rise in aggregate consumption (col. (3)), is to begin with largely required for the rising population, but some modest rise in the average consumption (col. (8)) does occur right from the start. Consumption per employed worker (col. (9)), which might be taken as a measure of the real wage-rate, is allowed to rise somewhat more rapidly, but these gains are in part dissipated in the earlier periods by the continuing growth in the parasitic population, u. In spite of the violence of the capital accumulation effort, unemployment proves to be highly intractable because of the low labour requirements of the high-productivity techniques being introduced. It should be added that the problem of variation of techniques according to the level of development

has been excluded by hypothesis. In a broad sort of way the model is in agreement with the experiences both of the Soviet Union and of the capitalist countries. Standards of living remain low for a long time after the commencement of industrialisation. Furthermore, there is a persistent tendency to surplus labour, which is always observed.

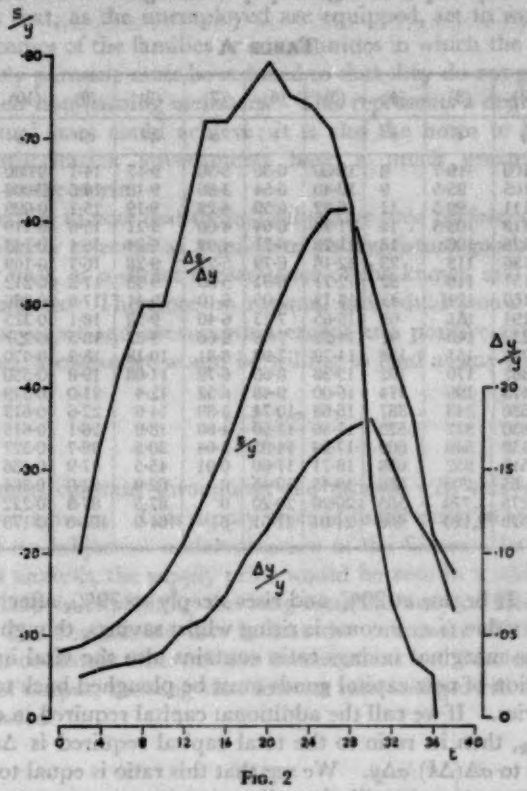


FIG. 2

This model, like many others, is an exercise in compounding, but it is strikingly different from the " balanced growth " models which have been widely used in analysing economic development. Such models imply a constant percentage growth rate, whereas here we have the rate, $\Delta y/y$, beginning at 2·5% and rising steadily to 18% per year and then falling back close to the required terminal growth rate of 5% (Table A and Fig. 2). Similarly, it is to be contrasted with the practice, both in model building and in the conduct of high policy, of posing the problem as one of pushing up the savings ratio to some " satisfactory " or " best " level. The savings ratio, starting at 8%, undergoes a rapid acceleration to a maximum of

61·5% of net national income. Thereafter it decelerates rapidly to 17·5%. Perhaps the most crucial indicator is the implied marginal propensity to save, $\Delta s/\Delta y$—it is "implied," since saving is determined by planning decision rather than any voluntary behaviour patterns of income receivers. As in any poor community, the *average* saving ratio is unduly low, but the *marginal* ratio may be put as high as population growth and Ramsey's Rule

TABLE A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
t	k	y	c	s	I	v	u	c/I	c/v	s/y	$\Delta s/\Delta y$	$\Delta y/y$
0	350	100	19·7	8	10·00	6·50	3·50	9·17	14·1	0·080	—	—
2	368	105	95·5	9	10·40	6·54	3·86	9·18	14·6	0·086	0·20	0·025
4	388	111	99·5	11	10·82	6·59	4·23	9·19	15·1	0·099	0·33	0·029
6	412	118	103·5	14	11·24	6·64	4·60	9·21	15·6	0·119	0·43	0·032
8	441	126	108	18	11·70	6·71	4·99	9·24	16·1	0·143	0·50	0·034
10	476	136	113	23	12·16	6·79	5·27	9·28	16·7	0·169	0·50	0·040
12	527	151	119	32	12·71	6·91	5·80	9·33	17·2	0·212	0·60	0·054
14	590	169	124	45	13·15	7·05	6·10	9·41	17·6	0·266	0·72	0·060
16	680	194	131	63	13·65	7·25	6·40	9·58	18·1	0·325	0·72	0·074
18	812	232	140	92	14·22	7·56	6·66	9·82	18·5	0·397	0·76	0·098
20	998	285	151	134	14·79	7·98	6·81	10·18	18·9	0·470	0·79	0·114
22	1,268	362	170	192	15·38	8·60	6·78	11·08	19·8	0·530	0·75	0·135
24	1,653	473	199	174	16·00	9·48	6·52	12·4	21·0	0·579	0·74	0·154
26	2,205	630	243	387	16·63	10·74	5·89	14·6	22·6	0·613	0·71	0·166
28	2,980	850	327	523	17·30	12·50	4·80	18·9	26·1	0·615	0·62	0·175
30	4,050	1,158	549	609	17·99	14·95	3·04	30·5	36·7	0·527	0·28	0·181
32	5,280	1,510	852	658	18·71	17·80	0·91	45·5	47·9	0·436	0·14	0·153
34	6,600	1,885	1,205	686	19·45	19·45	0	62·0	62·0	0·364	0·07	0·124
36	7,960	2,275	1,770	505	20·20	20·20	0	87·5	87·8	0·222	0·05	0·104
38	9,000	2,570	2,120	450	21·01	21·01	0	101·0	101·0	0·175	−0·37	0·065

will permit. It begins at 20% and rises steeply to 79%, after which it falls to a negative value (*i.e.*, income is rising whilst savings, though positive, are falling). The marginal savings ratio contains also the vital information of what proportion of new capital goods must be ploughed back to the capital-goods industries. If we call the additional capital required in capital-goods industries Δk_k, then its ratio to the total capital required is $\Delta k_k/\Delta k$, which will be equal to $\sigma\Delta(\Delta k)/\sigma\Delta y$. We see that this ratio is equal to $\Delta s/\Delta y$, since $s = \Delta k$. The same ratio will also tell us to what extent we are doing pure compounding at a constant rate. Thus, if aggregate consumption were kept constant we could take the initial amount of saving and turn it into added income, all of which in turn would be saved, and so forth. The result would be growth in net income at over 50% compounded every two years, or about 25% compounded every year. As has been recognised since the eighteenth century, long-term compounding produces spectacular results, and at such ultra high rates it does so even in short periods. And yet this 25% rate is, if anything, on the conservative side, since a capital–output ratio (on which it is based) of 3·5 is rather high, and hence inhibits growth. However, we only compound at the 25% rate to the extent that we plough

back capital goods to capital-goods capacity, *i.e.*, we make machines to make machines to make more machines and so on. The ratio $\Delta s/\Delta y$ tells us the best proportion in which to do pure compounding, assuming that our aim is the psychic worth of consumption and not mere size of total output. The degree to which, in practice, one can hold down the standard of living in the early stages is of crucial importance, but also highly intractable. What is required is that, as the unemployed are equipped, set to work and paid wages the incomes of the families or communities in which the unemployed were previously parasitic must be reduced so that they do not gain by being relieved of their non-earning members. This represents a degree of control which no actual state could achieve; it is also the norm to be aimed at. Evidently authoritarian governments have a much greater ability to approximate to the norm.

It is interesting to note that though subjective time preference, if it exists, has been explicitly rejected as a guide to policy, future goods become less desirable per unit, as a direct consequence of the known and foreseen rise in living standards. Therefore no rational individual would lend money for future repayment and consumption except at a positive rate of interest. If free to do so, a consumer would be willing to lend at any rate of interest greater than

$$\frac{1 + 1/\sigma}{1 + \alpha}$$

and this remains constant throughout the process. In this example it is about 23% per annum. This supply price of funds exists in spite of perfect foresight and no subjective undervaluation of the future. In accord with Schumpeter's analysis, the supply price would be zero in a stationary state. This should help in explaining the long-run constancy of interest rates in capitalism. The remarkable fact is that the constancy of the subjective interest rate is consistent with massive accelerations and decelerations in the growth rate of output, showing that interest rate and growth rate need not be closely related.

III

To get beyond the elegant generality of Ramsey's Rule, it is necessary to specify some sort of valuation function. In the previous section I have shown how this may be done for an arbitrary weighting function by a numerical analysis which is somewhat laborious and cumbersome. On the other hand, an appropriate mathematical function will allow of an explicit solution with all its advantages. The logarithmic utility function is the oldest, and it is also the simplest one to contain the required characteristic of diminishing marginal utility from infinity to zero, over the whole range of incomes. Assuming this, we have

$$u = \phi(z) = \log (z - \bar{z})$$

where $\bar{z}$ is the minimum of subsistence, and marginal utility is given by

$$\phi'(z) = 1/(z - \bar{z})$$

Our solution for the behaviour of $\phi'(z)$ now becomes

$$\frac{1}{z_t - \bar{z}} = \phi'_0\left(\frac{1+\alpha}{1+1/\sigma}\right)^t$$

or in terms of consumption, with C an arbitrary constant

$$z_t = C(1 + 1/\sigma)^t + \bar{z}l_0(1 + \alpha)^t$$

If now we substitute this back into our original equation we get

$$-\Delta k + k/\sigma = C(1 + 1/\sigma)^t + \bar{z}l_0(1 + \alpha)^t$$

the complete solution to which is

$$k_t = (A + Bt)(1 + 1/\sigma)^t + \bar{z}l_0(1 + \alpha)^t$$

A and B are arbitrary constants with $C = -(1 + 1/\sigma)B$. A may be determined from the initial stock of capital and B from the desired terminal growth rate. If we agree to select the final biennial period, f, by the requirement that the New capital goods must be sufficient to employ the whole population, we have, in effect, a third arbitrary constant and a third equation to determine it. We must determine f simultaneously with A and B, since we cannot determine them until we know it, and it until we know them. This can be done iteratively

The subsistence minimum, $\bar{z}$, is naturally very important in determining the time required for an optimal change-over. There may be no clearly defined minimum, so $\bar{z}$ cannot be taken as given. In such a case we might make a political decision that the change-over must be accomplished in f years, and from this determine what mimimal z is to be specified. Indeed, the strong desire to " catch up " may legitimately be used as an argument for persuading the present generation to sacrifices it might otherwise violently reject. In the example to be discussed below, if subsistence is 8·95 it will take 70 years to change over, but only 40 years if subsistence is 7·50. There are, however, severe limits to the choice, for to get the time down to 30 years would require a subsistence of 3·70, and, at the other end, a subsistence of 9·00 would mean that the change-over could never be completed.

For the second example I shall take the extremely high value of 5 years for the capital–output ratio, σ. In this way we pose the most severe difficulties for a planned industrialisation, so that any optimism in the result cannot be charged to favourable assumptions. Otherwise all the structural data are as in example A of the previous section. However, the economy must be more productive initially with relation to the subsistence minimum. Accordingly, $\bar{z}$ is taken to be 7·5 in example B. The change-over will be approximately completed in 40 years, which is, then, the period over which utility is to be maximised. The details of the required behaviour are given in Table B and Fig. 3.

In spite of a completely different kind of utility function and a vastly different situation with regard to available surplus, it will be seen that the qualitative prescriptions for cases A and B are the same. Consumption is severely restrained, the savings ratio rises to great heights and income is first accelerated and then decelerated. The quantitative behaviour differs, naturally, in detail because of the great differences in the real structure. In

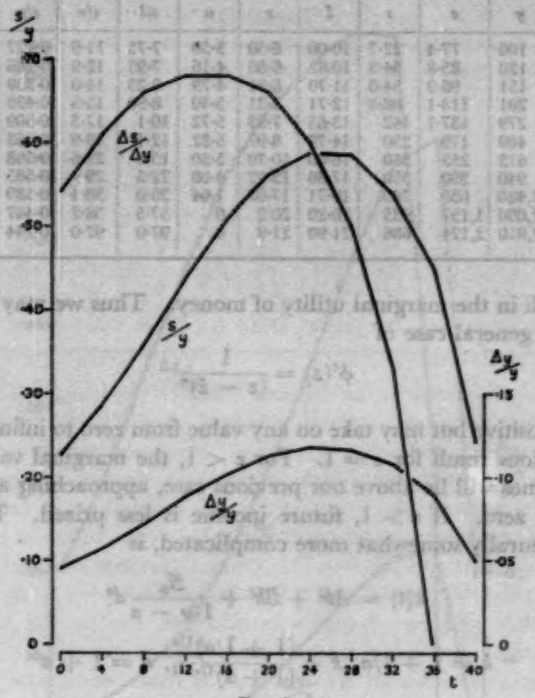


FIG. 3

example B the marginal savings ratio begins much higher, does not need to be pushed quite so high and turns down sooner. Similarly, the savings ratio has a much less sharp peak and somewhat less extreme behaviour in B than in A. The growth rate begins higher, rises sooner, but therefore does not need pushing to such great heights as in case A. The wage-rate (col. (9)) can be allowed to drift upward more rapidly, but not strikingly so, in B than in A. Altogether B can take it more easily than A because it is richer, as would be made clearer if the subsistence minima were equated, instead of the outputs. Perhaps the most striking uniformity in the ideal policy for these two quite dissimilar countries is the total length of change-over, 38 years in the one and 40 years in the other case.

Not only is it possible to analyse the logarithmic utility valuation (and all constant multiples of it), but we can go much further and consider a whole family of skewed logarithmic curves which allow us to consider any

TABLE B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
t	k	y	c	s	l	v	u	c/l	c/v	s/y	$\Delta s/\Delta y$	$\Delta y/y$
0	500	100	77·4	22·7	10·00	6·50	3·50	7·75	11·9	0·227	0·54	0·045
4	600	120	85·8	34·3	10·82	6·66	4·16	7·95	12·9	0·286	0·61	0·057
8	755	151	96·9	54·3	11·70	6·91	4·79	8·25	14·0	0·359	0·66	0·072
12	1,004	201	113·1	88·1	12·71	7·31	5·40	8·90	15·5	0·438	0·68	0·088
16	1,397	279	137·1	142	13·65	7·93	5·72	10·1	17·3	0·509	0·68	0·102
20	2,043	409	179	230	14·79	8·97	5·82	12·1	19·9	0·563	0·66	0·113
24	3,066	613	253	360	16·00	10·70	5·30	15·8	23·6	0·588	0·60	0·118
28	4,700	940	390	550	17·30	13·22	4·08	22·5	29·4	0·585	0·50	0·117
32	7,090	1,420	655	765	18·71	17·07	1·64	35·0	38·4	0·539	0·33	0·108
36	10,460	2,090	1,157	935	20·20	20·2	0	57·5	58·2	0·447	−0·09	0·089
40	14,060	2,810	2,124	686	21·90	21·9	0	97·0	97·0	0·244	−1·88	0·049

degree of fall in the marginal utility of money. Thus we may consider the much more general case of

$$\phi'(z) = \frac{1}{(z - \bar{z})^{\varepsilon}}$$

where ε is positive but may take on any value from zero to infinity, reducing to our previous result for $\varepsilon = 1$. For $\varepsilon < 1$, the marginal value of future higher incomes will lie above our previous case, approaching a constant for values near zero. If $\varepsilon > 1$, future income is less prized. The solution, which is naturally somewhat more complicated, is

$$k(t) = Ab^t + Bh^t + \frac{\bar{z}l_0}{1/\sigma - \alpha}d^t$$

where $$b = 1 + 1/\sigma,\ h = \frac{(1 + 1/\sigma)^{1/\varepsilon}}{(1 + \alpha)^{1/\varepsilon - 1}},\ d = 1 + \alpha$$

Also $$C(t) = (b - h)Bh^t + \bar{z}l_0d^t$$

In this way we may investigate a very different valuation curve, given by $\varepsilon = 1/5$. In this example C, the marginal utility curve, lies well above that of B for most of the range that matters, and that of example A lies somewhere in between the other two. Thus, we shall have samples of a very wide range of different valuation curves. Otherwise everything is as in B except that $\bar{z}$, at 8·75, is taken very near the critical limit of 9·00, above which the change-over cannot be effected. This means that accumulation is painful; on the other hand, it is urgently desirable, since $\varepsilon < 1$ means that the gains from postponing consumption are much greater. These two effects seem partially to cancel one another, for we find that the industrialisation will be completed in an optimal way in about 41 years, almost equal to B. The

detailed results, given in Table C and Fig. 4, are broadly similar to those of the other two examples, but with important differences of degree. The combination of a high capital requirement and low available surplus with a high psychic value of future high incomes means that the change-over is

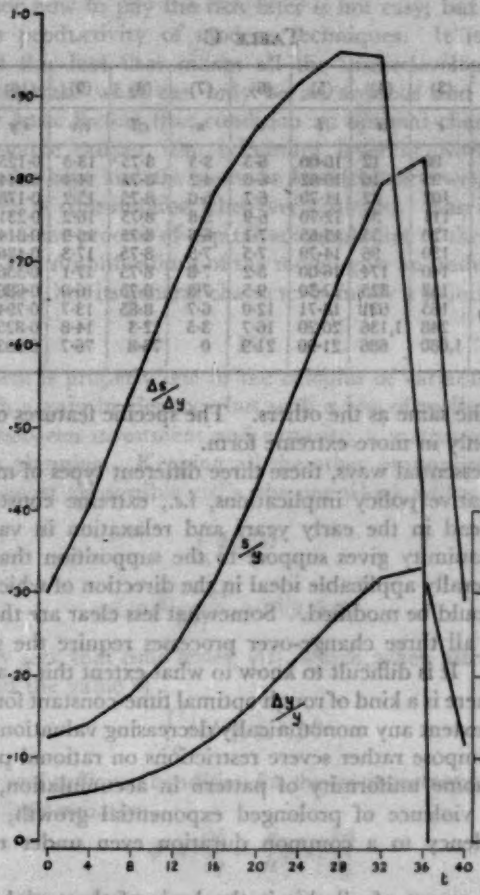


FIG. 4

an extremely difficult affair. Thus the standard of living is scarcely allowed to rise at all until nearly the end of the process (which is not quite terminated by the fortieth year). The severity of the effort required is shown by the fact that in the years 28–30, 95% of the increased output is ploughed back into capital goods (col. (11)). Unemployment (col. (7)) proves to be more

intractable than in A and B, becoming nearly as great as employment around the twentieth year. One consequence of the stringency is that the average wage rate (col. (9)) actually declines between the years 20 and 32, though the standard of living does not. This results from the lowering of the burden of parasitic unemployment. No such behaviour occurs in either A or B. However, by comparing Fig. 4 with Figs. 2 and 3, we see that C

TABLE C

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
t	k	y	c	s	l	v	u	c/l	c/v	s/y	$\Delta s/\Delta y$	$\Delta y/y$
0	500	100	88	12	10·00	6·5	3·5	8·75	13·5	0·125	0·30	0·025
4	554	111	95	16	10·82	6·6	4·2	8·75	14·4	0·144	0·41	0·029
8	622	125	102	22	11·70	6·7	5·0	8·75	15·2	0·178	0·54	0·036
12	723	145	111	34	12·70	6·9	5·8	8·75	16·2	0·231	0·67	0·046
16	869	174	120	55	13·65	7·1	6·6	8·75	16·9	0·314	0·79	0·063
20	1,120	224	130	96	14·79	7·5	7·3	8·75	17·3	0·426	0·86	0·085
24	1,560	312	140	174	16·00	8·2	7·8	8·75	17·1	0·556	0·91	0·111
28	2,368	474	152	325	17·30	9·5	7·8	8·75	16·0	0·686	0·95	0·137
32	3,907	783	165	621	18·71	12·0	6·7	8·85	13·7	0·794	0·95	0·159
36	6,870	1,375	248	1,136	20·20	16·7	3·5	12·3	14·8	0·825	0·43	0·165
40	11,730	2,345	1,680	686	21·90	21·9	0	76·8	76·7	0·293	−18·5	0·059

is qualitatively the same as the others. The specific features of A and B are all found here only in more extreme form.

Differing in essential ways, these three different types of model all share the same qualitative policy implications, *i.e.*, extreme constraint on consumption per head in the early years and relaxation in varying degrees later. Such unanimity gives support to the supposition that this pattern represents a generally applicable ideal in the direction of which all development policies should be modified. Somewhat less clear are the implications of the fact that all three change-over processes require the same absolute amount of time. It is difficult to know to what extent this is accidental and to what extent there is a kind of rough optimal time-constant for industrialisation. To some extent any monotonically decreasing valuation of increments of income does impose rather severe restrictions on rational policy. There tends to result some uniformity of pattern in accumulation, which, combined with the violence of prolonged exponential growth, does perhaps yield some tendency to a common duration even under rather various circumstances.

The darkest aspect of all this is the basis of the social evaluation of different income levels. Such a comparison cannot be made on any scientific or positivistic basis, but only by an act of political judgment. The difficulties involved are, however, no ground for evading the issue. Any policy, or worse still any lack of policy, involves the most thoroughgoing comparison of the welfares of the living and of the unborn. Failure to pursue a severe rate of accumulation is compromising the welfare of those

who have no direct say in current decisions. The difficulty of making these value judgments is vastly increased by ignorance of what are the objective consequences of any action or inaction. Working out the consequences of various marginal valuation functions along the lines of this paper should help in arriving at some more rational basis of policy than at present.

It is urgent to see the problem in its full awkwardness. To justify the robbing of poor now to pay the rich later is not easy, but it is implied by the enormous productivity of modern techniques. It is the instinctive recognition of this fact that makes all the underdeveloped countries so anxious to undertake what can only be an arduous and initially painful process. The basic factors that condition an optimal change-over are the existing achievable output, the minimum level at which consumption standards can be kept and the more or less arbitrary weights attached to the higher levels of consumption whenever achieved. Barring absurdly low values, some violent process of capital accumulation of the type illustrated is the ideal. The simplifications of the model give an unduly sharp outline of the ideal policy, but its general character is surely a sound guide to policy.

IV

Our problem is properly one in the calculus of variations, and may be so treated with a gain in elegance but with a loss of realism. We have to drop the lag between investment and capacity, a matter of great practical importance in planning. Keeping all the other assumptions, the planners must seek, amongst all possible $z(t)$'s, the one which will maximise

$$\int_0^T \phi(z)dt$$

But
$$z = \frac{y - \sigma\dot{y}}{l(t)} = \psi(y, \dot{y}, t)$$

Therefore they seek that time series, $y(t)$, which, when altered slightly, will leave unaltered the value of

$$\int_0^T \phi[\psi(y, \dot{y}, t)]dt$$

The necessary and sufficient condition for the stationariness of this expression is given by Euler's equation,

$$\phi'(z)\frac{\partial\psi}{\partial y} = \frac{d}{dt}\phi(z)\frac{\partial\psi}{\partial\dot{y}}$$

which, in this case, reduces to

$$\frac{d\phi'}{dt}/\phi' = -(1/\sigma - \alpha)$$

which, in slightly different form, I have called Ramsey's Rule.

If we assume a logarithmic weighting function, then

$$\phi(z) = \log(z - \bar{z})$$

and we seek that $y(t)$ which renders stationary

$$\int_0^f \log\left(\frac{y - \sigma\dot{y}}{l(t)} - \bar{z}\right) dt$$

Integrating Euler's equation, we get the solution

$$y(t) = (Y_1 + Y_2 t)e^{t/\sigma} + \frac{\bar{z}l_0}{1 - \sigma\alpha}e^{\alpha t}$$

where Y_1 and Y_2 are arbitrary constants to be determined by such boundary conditions as we choose. This is the continuous analogue of the finite difference solutions given above.

To show the similarity with the previous cases, we may construct an example under still more different conditions. Let us assume the following: capital–output ratio $\sigma = 4$ years, the rate of growth of labour force $\alpha = 1\%$, $l_0 = 10$, $y_0 = 100$, $\bar{z} = 9$ and the productivity of the Old techniques $\varepsilon_A = 15{\cdot}4$ and of the New $\varepsilon_N = 333$. Requiring a terminal growth rate of 5% per year, full employment is reached in around 23 years and the whole labour force is equipped with the New techniques in between 34 and 35 years. Taking $f = 34$ years, we may determine our arbitrary constants, giving

$$y(t) = (6{\cdot}25 - 0{\cdot}160t)e^{0{\cdot}25t} + 93{\cdot}75e^{0{\cdot}01t}$$

The details are given in Table D. In spite of a population pressure only half as great as the others, D requires only 4–6 years less to complete change-

TABLE D

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t	y	C	S	l	c/l	s/y	ds/dy	$\dot{y}/y$
0	100·0	90·6	9·4	10·0	9·06	0·094	0·548	0·023
1	101·8	91·7	10·1	10·1	9·08	0·099	0·588	0·026
2	105·3	92·9	12·4	10·2	9·11	0·118	0·624	0·030
3	108·7	94·1	14·6	10·3	9·14	0·134	0·655	0·034
5	117·6	96·8	20·8	10·5	9·22	0·177	0·710	0·044
10	160·0	107·3	52·7	11·1	9·7	0·330	0·778	0·083
20	566	205	361	12·2	16·8	0·638	0·658	0·159
25	1,286	448	838	12·8	35·0	0·653	0·596	0·163
30	2,747	1,280	1,467	13·5	94·8	0·534	0·199	0·132
32	3,499	2,034	1,465	13·8	147·5	0·420	−0·334	0·102
34	4,092	3,297	795	14·1	234·0	0·195	−3·0	0·048

over. We again find the same patterns of marginal and average saving, the marginal rate beginning at over 50% (col. (7)). The result again gives support to the view that the general policy prescriptions are not very dependent on the particular assumptions about social valuation, capital–output ratios and the like.

R. M. GOODWIN

Peterhouse,
Cambridge.

A METHOD FOR SEPARATING THE EFFECTS OF CAPITAL ACCUMULATION AND SHIFTS IN PRODUCTION FUNCTIONS UPON GROWTH IN LABOUR PRODUCTIVITY

I. Introductory

In many recent analyses of economic growth attempts are made to separate the growth effects of increased labour input, capital accumulation and shifts in the production functions. Very often such studies have concluded that the main part of the growth of production is due to shifts in the functions rather than to growth in input of traditional production factors. In particular, it is often concluded that capital accumulation plays a far smaller role than previously believed. (A survey of some of these studies is given in G. Reuss [9].)

I have argued on another occasion (see [5], pp. 158–63) that I do not find these conclusions quite convincing.

One of the problems in empirical growth studies is that of obtaining appropriate statistical information about capital accumulation. Usually the figures used do not correspond to the definition of "capital" which would be most relevant for analyses of production,[1] and the figures are unreliable also as measurements of what they should measure according to their definitions.

For this reason among others it may be interesting to see whether any conclusions concerning the above problem can be obtained without employing capital figures. In the following a method is presented which employs only figures for income shares and increases in labour productivity. Of course, this can only be achieved at the cost of introducing some more restrictive theoretical assumptions.

The method cannot be applied to single industries. It requires cross-section data for a set of several industries.

In the final section the method is applied to statistical material for British industries presented and used in W. E. G. Salter [10]. The reading of Dr. Salter's study has stimulated the writing of this paper.

II. The Theory and the Method

Let there be I industries ($i = 1, 2, \ldots I$) under consideration. Let the production function for industry No. i be the Cobb–Douglas type

$$X_{it} = A_{it} N_{it}^{\alpha_i} K_{it}^{\beta_i} \qquad (i = 1, 2, \ldots I), \tag{1}$$

where X_{it} measures production in period No. t, N_{it} measures labour input and K_{it} measures capital input. We need not here concern ourselves with

[1] See the discussion of "Capital as a Factor of Production" in Part II of T. Haavelmo [1].

the precise definition of the capital concept, since we shall not use statistical figures for the stocks of capital in the empirical analysis.

The elasticities γ_i and β_i are assumed to be constant with $\gamma_i + \beta_i = 1$, whereas the factor A_{it} may generate shifts in the production function and is therefore furnished with subscript t. This amounts to saying that there are constant returns to scale and technological progress is neutral. Furthermore, (1) implies that the elasticity of substitution is unity.[1]

We shall here use only two years, which we denote $t = 1$ and $t = 2$ in the formulæ below. They need not, however, be consecutive years. In the application in the final section the first year is 1924 and the second year is 1950.

From (1) we obtain for the labour productivity which we denote by a_{it}

$$a_{it} = \frac{X_{it}}{N_{it}} = A_{it} N_{it}^{\gamma_i - 1} K_{it}^{\beta_i} = A_{it} \left(\frac{K_{it}}{N_{it}} \right)^{\beta_i} \tag{2}$$

The labour productivity in period No. 2 compared to period No. 1 is accordingly

$$\frac{a_{i2}}{a_{i1}} = \frac{A_{i2}}{A_{i1}} \left(\frac{K_{i2}/N_{i2}}{K_{i1}/N_{i1}} \right)^{\beta_i} = \frac{A_{i2}}{A_{i1}} \left(\frac{K_{i2}/K_{i1}}{N_{i2}/N_{i1}} \right)^{\beta_i} \tag{3}$$

This relation shows how the increase in labour productivity depends upon the shift in the production function as expressed by A_{i2}/A_{i1} and the increase in capital per worker.

Now let W_{it} be the wage rate in industry No. i in period No. t and let R_{it} express the costs which are associated with the use of one unit of capital.

Assuming that producers minimise total costs (for whatever quantity they may produce) and that they consider W_i and R_i as given magnitudes in this minimisation, we obtain the condition

$$\frac{W_{it} N_{it}}{\gamma_i} = \frac{R_{it} K_{it}}{\beta_i} \tag{4}$$

Using this for $t = 1$ and $t = 2$ we further obtain

$$\frac{W_{i2} N_{i2}}{W_{i1} N_{i1}} = \frac{R_{i2} K_{i2}}{R_{i1} K_{i1}} \tag{5}$$

or

$$\frac{K_{i2}/N_{i2}}{K_{i1}/N_{i1}} = \frac{W_{i2}/W_{i1}}{R_{i2}/R_{i1}} = w_i \tag{6}$$

in which w_i is defined by the latter equation and may be called for simplicity the relative increase in wages. We have $w_i > 1$ when: (*a*) real wages have increased; (*b*) the prices of capital goods have not changed too much out of step with prices of consumption goods; and (*c*) the rate of interest required on

[1] Some tentative results in an unpublished study by K. J. Arrow, H. B. Chenery, B. S. Minhas and R. M. Solow suggest that the elasticity of substitution between capital and labour in manufacturing may typically be less than unity.

investment in real capital has not increased too much from period No. 1 to period No. 2.

We shall now make a crucial assumption, in fact the assumption which makes it possible to use a cross-section material for our present purpose. The assumption is that the relative increase in wages is the same in all industries, *i.e.*,

$$w_1 = w_2 = \ldots = w_I = w \tag{7}$$

where w now denotes the common value for the w_i's.

This assumption is valid if there exists a wage pattern

$$W_1 : W_2 : \ldots : W_I$$

which remains constant when the wage level is raised, and similarly there exists a constant pattern for the capital costs.

Empirical evidence seems to indicate that such a constant inter-industrial pattern exists for wages, see, *e.g.*, W. G. Hoffmann [2]. For remuneration to capital there is hardly any relevant evidence available, but it does not seem unlikely that a fairly fixed pattern should exist also in this case, although it will probably exhibit some cyclical fluctuations.

However, (7) may be valid also when the patterns $W_1 : W_2 : \ldots : W_I$ and $R_1 : R_2 : \ldots : R_I$ are not constant, provided that they change in a parallel way. Such cases may occur if both labour and capital share proportionately in gains from changes in market conditions for some industries.

Inserting now in (3) from (6) and (7) we obtain

$$\frac{a_{i2}}{a_{i1}} = \frac{A_{i2}}{A_{i1}} \cdot w^{\beta_i} \tag{8}$$

Introducing

$$\varepsilon_i = \log\left(\frac{A_{i2}}{A_{i1}}\right) \tag{9}$$

we can write (8) as

$$\log\left(\frac{a_{i2}}{a_{i1}}\right) = (\log w)\beta_i + \varepsilon_i \tag{10}$$

This equation forms the basis of our method.

Suppose that we had a cross-section of material showing $\frac{a_{i2}}{a_{i1}}$ and β_i for the individual industries $i = 1, 2, \ldots I$. Could we then fit (10) to the observations and obtain a figure for $\log w$, and by that also figures for $\varepsilon_1, \ldots \varepsilon_I$ as residuals?

Without making more assumptions than introduced above, we cannot solve this problem meaningfully. However, if we are willing to assume that $\varepsilon_1, \ldots \varepsilon_I$ are uncorrelated with $\beta_1, \ldots \beta_I$ we obtain the solution by simply

computing the ordinary least squares regression of $\log\left(\frac{a_{i2}}{a_{i1}}\right)$ on β_i.[1] In the lack of empirical evidence on this point it may perhaps be worth while to do some tentative explorations on this assumption. On *a priori* grounds I think one should not expect any strong correlation (within manufacturing industry).

In this regression we should, of course, include a constant term. The constant term obtained can be interpreted as an (unweighted) average of technological progress within the group of industries under consideration.

Now usually we do not know such figures as $\beta_1, \ldots \beta_I$. However, if we assume that $W_iN_i + R_iK_i$ constitutes the whole value added in industry No. i, as it would under competitive conditions,[2] we can derive from (4) that

$$(11) \qquad \begin{cases} \gamma_i = \text{the wage share in value added, and} \\ \beta_i = \text{the capital share in value added.} \end{cases}$$

If we have figures for the income shares we could then proceed as above, only with the capital share in industry No. i substituted for the β_i. In this case the regression problem would not be so simple any longer, since there are bound to be deviations from perfect fulfilment of equations (4) and (11). However, if these deviations are small as compared with the deviations of $\beta_1, \ldots \beta_I$ we may still obtain a good approximation by computing the regression of $\log\left(\frac{a_{i2}}{a_{i1}}\right)$ on the observed capital shares.

It may be remarked that discrepancies in such adaptional equations as (4) are insufficiently treated in econometric literature. See, however, J. Marschak and W. H. Andrews [8].

If w were known from other sources, we could, of course, avoid the whole regression problem.[3] However, relevant evidence on changes in returns to capital is very scanty and unreliable. Nevertheless, the fact that the regression coefficients can be interpreted as an estimate of $\log w$ offers a possibility for a plausibility check of the results. Remembering what was said just below formula (6), we should expect $w > 1$ and accordingly $\log w > 0$.

[1] Let (10) be written as

$$y_i = \alpha\beta_i + \epsilon_i$$

where $y_i = \log\left(\frac{a_{i2}}{a_{i1}}\right)$ and $\alpha = \log w$, and let $\bar{y}$ denote the average of $y_1, \ldots y_I$ and similarly for $\bar{\beta}$ and $\bar{\epsilon}$. The assumption that $\epsilon_1, \ldots \epsilon_I$ are uncorrelated with $\beta_1, \ldots \beta_I$ is expressed by the requirement

$$\Sigma(\beta_i - \bar{\beta})\,(\epsilon_i - \bar{\epsilon}) = 0$$

Inserting here $y_i - \alpha\beta_i$ for ϵ_i and $\bar{y} - \alpha\bar{\beta}$ for $\bar{\epsilon}$, we obtain

$$\alpha = \frac{\Sigma(\beta_i - \bar{\beta})\,(y_i - \bar{y})}{\Sigma(\beta_i - \bar{\beta})^2}$$

which is the formula for the least squares regression coefficient.

[2] It may be remarked that the above procedure is justified also under non-competitive conditions if the monopolisation is reflected only in a claim for higher returns to capital.

[3] Compare the computations in W. E. G. Salter [10], pp. 138–40.

III. An Application

We shall now apply the theory and the method presented above to a United Kingdom inter-industry survey based upon Census of Production Reports and presented and used in W. E. G. Salter [10]. For several reasons to be indicated later the computations should be considered only as a very rough experiment.

The survey covers $I = 28$ industries selected on the basis of the quality of the data, and the two years compared are 1924 and 1950.[1]

Figures for the increase in labour productivity, in our notations $\frac{a_{i2}}{a_{i1}}$ for $i = 1, \ldots 28$ are given by Salter in Table 14, p. 107.

In Table 18, p. 121, in Salter's study are given components of gross value of output. The components given are Materials, Wages and salaries, and Gross margins. If materials are connected with output by constant input–output coefficients we can add the components Wages and salaries and Gross margins and consider each of them as shares of the sum, and then identify the latter share with what we have called the capital share.

However, we can compute such shares both for 1924 and 1950. I therefore choose the average of the shares for the two years as the figure to be used in the sequel.[2]

On this basis we obtain a scatter diagram as presented in Fig. 1. It is seen that the points do not cluster around a line as we usually like them to do in regression analysis. However, this does not in itself give any reason to doubt the theory. It only means that there are large inter-industry variations in the rate of technological progress.

Computing the regression equation we obtain the following equation corresponding to equation (10) above:

$$\log\left(\frac{a_{i2}}{a_{i1}}\right) = 0{\cdot}266\,\beta_i + 0{\cdot}080 \tag{12}$$

(This equation is represented by the heavy line in Fig. 1.) Here 0·266 represents $\log w$ and 0·080 represents the average technological progress as explained above.

Taking the antilog of 0·266, we obtain 1·845 for w.

The constant term 0·080 in (12) implies that the production functions have on average shifted positively by about 20% from 1924–1950, which means 0·7% per year as a compound interest.

If we should now ascribe the increase in labour productivity to the two factors growth in capital per worker and shifts in the production function we

[1] The industries included are given in footnote 1 on p. 780.

[2] For some sectors the shares in 1924 and 1950 differ so widely that the straightforward regression procedure proposed in Section II and applied in this section might be seriously questioned. A closer scrutiny of the figures would therefore be desirable. Partly for this reason, I shall in the sequel restrict myself to presenting and commenting upon average results and not results for individual industries.

would have the following picture for an industry with $\beta = 0{\cdot}50$, which is slightly above the average in the sample. The first factor accounts for a growth in labour productivity of 36% (antilog 0·133 − 1), the second for 20% (antilog 0·080 − 1). The total growth would be 63% (antilog 0·213 − 1), thus leaving 7% for the interaction between the factors.

Now Dr. Salter makes the interesting observation, which confirms results by others, that " the significant increases in output per head have invariably

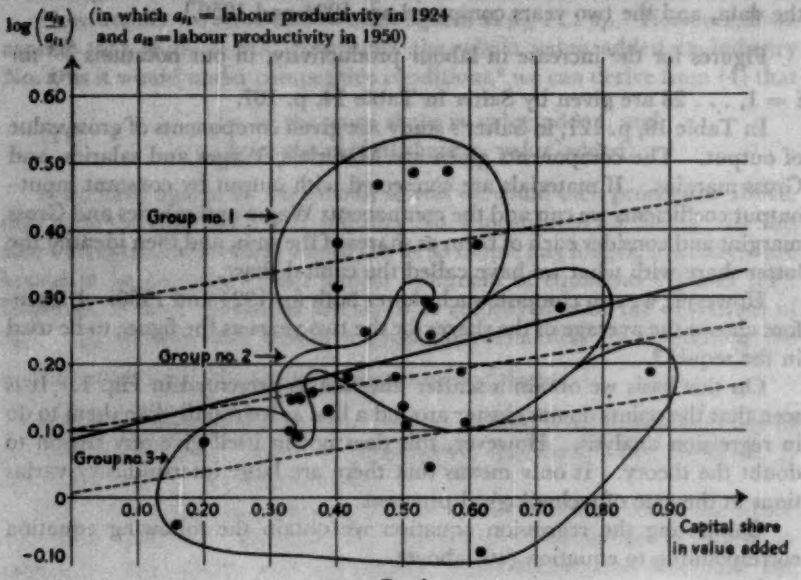


FIG. 1

accompanied large increases in output." This does not necessarily invalidate the above computations. However, if the ε's are correlated with the increases in output, and further the increases in output are correlated with the β's, then one of the assumptions underlying the above computations is clearly not fulfilled. It might therefore be safer to take into account in some way or other the empirical fact pointed out here. I have done that by dividing the 28 industries into three groups: the first group comprising the 9 industries with the highest increases in output, the second group comprising the 10 industries with middle increases in output and the third group comprising the 9 industries with the lowest increases in output.[1] In Fig. 1 the

[1] The first group includes Electricity generation, Rubber manufactures, Chemicals, Cutlery, Steel tubes, Glass (containers and other), Cement, Wire and wire working, Paper and board. The second group includes Paint and varnish, Spirit distilling, Iron and steel, Brushes and brooms, Hosiery and knitted goods, Linoleum, Cocoa and confectionery, Brick and fireclay, Coke ovens and Blast furnaces. The third group includes Leather, Matches, Boots and shoes, Brewing, Tinplate, Cotton (spinning and doubling), Coal-mining, Wallpaper and Jute.

contour lines separate the three groups. I then computed a new regression, but now allowing the constant term to be different as between the groups.[1] The coefficient before β_t is still assumed to be the same for all groups, *i.e.*, we assume the relative increase in wages to be the same in all groups. The results are as follows:

$$(13) \qquad \log\left(\frac{a_{i2}}{a_{i1}}\right) = 0{\cdot}161\,\beta_t + \begin{cases} 0{\cdot}288 \text{ for group No. 1} \\ 0{\cdot}098 \text{ for group No. 2} \\ 0{\cdot}007 \text{ for group No. 3} \end{cases}$$

This formula is represented by the dashed lines in Fig. 1.

By this computation we obtain 0·161 for log w instead of 0·266 as in (12). Correspondingly we get for w the figure 1·449 instead of 1·845. The difference is considerable. However, I think the picture shown in Fig. 1 conveys the impression that the latter computation is perhaps the more satisfactory of the two. No formal test is necessary to make sure that the constant terms in (13) are significantly different.[2]

For an industry with $\beta = 0{\cdot}50$ [3] and an average technological progress within its group we would now have the following breakdown of the total growth in labour productivity from 1924 to 1950:

	Growth accounted for by:			Total growth, %
	(1) Increase in capital per worker, %	(2) Shift in the production function, %	(3) Interaction of (1) and (2), %	
Group No. 1	20	94	20	134
Group No. 2	20	25	6	51
Group No. 3	20	2	—	22

This assigns to the effect of technological progress (as a catchword for all determinants of shifts in the production functions) a more important role than did our first computation. Still the growth in capital per worker does not appear to be unimportant.

IV. Concluding Remarks

I have previously, in [3] and [4], criticised the application of traditional production functions with technology trends such as (1) above and suggested

[1] Actually the computation was carried out by means of so-called dummy variables. For simple formulæ for such regressions, see [6]. An alternative to the above procedure would be to include the growth of output as a separate variable. We would, however, have no indication as to *how* it should be introduced and treated statistically.

[2] I have computed as a matter of routine the standard deviations for the coefficients before β_t in (12) and (13). They are 0·185 and 0·109 respectively. However, they do not answer any really meaningful question in our context. We are interested in what the technical progress actually was in the industries considered between 1924 and 1950 and not in a hypothetical universe from which these might be considered as realisations.

[3] The average capital share is in fact 0·44 in group No. 3 whereas it is very near to 0·50 in the two other groups.

an alternative approach which assumes that new technological knowledge can be exploited only when it is embodied in new capital equipment. A similar theory is set forth by Dr. Salter in Part I of his book. Also Professor Solow pursues a similar approach in [11]. He also demonstrates by means of numerical examples the importance of the point.

It is only because suitable statistical information for this alternative approach is not available that I have here used traditional production functions.

I should finally like to remark that I think the alternative approach mentioned here constitutes the best answer to Mr. Kaldor's contention in [7] that it is not meaningful or useful to try to separate the influences of technological progress and capital accumulation.

LEIF JOHANSEN

Institute of Economics,
The University,
Oslo.

REFERENCES

[1] T. Haavelmo, *A Study in the Theory of Investment* (Chicago University Press, 1960).

[2] W. G. Hoffmann, "On Forecasting Productivity Changes in an Expanding Economy," *International Economic Papers*, No. 9.

[3] L. Johansen, "Substitution versus Fixed Production Coefficients in the Theory of Economic Growth: A Synthesis," *Econometrica*, April 1959. Vol. 27 no. 2.

[4] L. Johansen, "Investeringsrate og Vekstrate," *Ekonomiska Samfundets Tidskrift*, 1960.

[5] L. Johansen, *A Multi-Sectoral Study of Economic Growth*, Contributions to Economic Analysis XXI (North-Holland Publishing Company, Amsterdam, 1960).

[6] L. Johansen, "A Note on Regression with Dummy Variables," *Memorandum from the Institute of Economics at the University of Oslo*, December 17, 1960.

[7] N. Kaldor, "A Model of Economic Growth," ECONOMIC JOURNAL, December 1957, Vol. LXVII, No. 268.

[8] J. Marschak and W. H. Andrews, Jr., "Random Simultaneous Equations and the Theory of Production," *Econometrica*, July–October 1944, Vol. 12, Nos. 3 and 4.

[9] G. E. Reuss, *Produktivitätsanalyse* (Kyklos-Verlag, Basel, 1960).

[10] W. E. G. Salter, *Productivity and Technical Change* (Cambridge University Press, 1960).

[11] R. Solow, "Investment and Technical Progress," in *Mathematical Methods in the Social Sciences 1959*, edited by K. J. Arrow, S. Karlin and P. Suppes (Stanford University Press, 1960).

REVIEWS

Production of Commodities by Means of Commodities. Prelude to a critique of economic theory. By P. SRAFFA. (London: Cambridge University Press, 1960. Pp. xii + 99. 12*s.* 6*d.*)

THE publication of this book is a notable event. Mr. Sraffa's work is marked by great originality and high distinction. In many passages the reasoning has a beautiful elegance. It is often extremely condensed. This is one of those rare books that, despite being inherently difficult, gives the reader pleasure as he proceeds, page by page.

Mr. Sraffa's volume makes a new approach to certain central parts of economic theory. A reviewer would be presumptuous if he supposed that he could give a final assessment of the value of its net product, or even single out what may prove to be its most lasting contributions. Before that result could be achieved, much prolonged consideration and reconsideration would be required. Nor could he summarise the many points of interest, as these are rather tightly packed together. There are complicated interconnections between the various themes. It must suffice to touch on a few points, and to indicate certain difficulties.

Perhaps the most remarkable feature of the book is that, while the determination of prices is one of its central topics, no reference is made to the scale or elasticity of the demand for end-products. (The word " demand " does not occur in the index.) It is surprising that one can get a system of price determination without reference to final demand. It might be thought that this was simply a reversion to early classical tradition, such as might come naturally from so profound a student of Ricardo.

The book is not, however, in its main approach to its problems, in the classical tradition. Indeed, Mr. Sraffa notes that " the term ' cost of production ' has been avoided in this work " (p. 9). The first part of the book is concerned with single product industries. Stress is laid on the use of commodities to produce commodities, as stated in the title. He opens with the case where all commodities produced are required for the production of further commodities in the endless cycle of a self-maintaining system, labour coming in under the head of the commodities required for its subsistence, in a sort of Marxist fashion. Starting with two industries and two commodities, industry A may produce an excess of its commodity, *a*, over the amount of it that is used in its own production, and similarly with industry B. The rate of exchange of *a* for *b* is determined, quite simply, by the ratio of the excess production of *a* to the excess production of *b*. If we proceed to a greater number of industries and commodities we have a system of simultaneous

equations, in which the exchange values of the commodities in terms of one another are determined by the same principle.

Then we pass to a state of affairs in which more commodities are produced than are required for their own reproduction (and labour can have more than a subsistence wage). Before proceeding to Mr. Sraffa's theories concerning wages and profit, we may note at the outset that Mr. Sraffa does not seem to be interested in the commodity-mix in which wage- and profit-earners choose to take out their net income. In an early passage (p. 7), where he is still dealing with a two-commodity world of wheat and iron, he assumes that the whole net income is taken out in wheat. That may seem sensible, as consumers do not presumably desire iron as such. But there is nothing in this passage to require that the second commodity, iron, is specifically a capital good. On the contrary, it is supposed to be setting the matter out in a perfectly general way. This is a difficulty arising, at the very outset, from the neglect of the composition of consumer demand. If consumers did happen to wish to have some iron, that would at once, in accordance with Mr. Sraffa's own equations, affect the price ratios, which his system purports to be determining without reference to consumer demand. I believe that this objection runs through all the complications of his subsequent treatment.

In this treatment wages and profit (though not the commodity-mix in which wages and profit are taken out) play their part in the system of equations showing the interdependent determination of prices. He drops the supposition that wages consist of subsistence only and finds it more convenient not to divide the wages element in cost into subsistence and non-subsistence, but gives wages their own independent place. In order to determine what wages will be, he requires a measure of value which is called a " Standard commodity." (One has to move forwards and backwards in reading this book.) This is a composite commodity which would be produced by a " Standard system " in which " the various commodities are produced in the same proportions as they enter the aggregate means of production " (p. 20). If it be objected that in an actual system there might be no such composite commodity, he claims that " in any actual economic system there is embedded a miniature Standard system which can be brought to light by chipping off the unwanted parts of the actual system." The elaboration of the Standard system is done with beautiful elegance, but space forbids a detailed exposition.

The Standard commodity is used to measure net income—the surplus of commodities over what is required for their own reproduction. The whole of net income might be assigned to wages or to profit (not quite the whole in the latter case, since something would presumably be required for subsistence), or be divided between them. The distribution between wages and profit is not, so it appears, determined by a supply and demand relation. On the contrary, it seems to come in as an arbitrary datum. The marginal productivity analysis is not used at all. On p. 11 Mr. Sraffa writes:

> "The result of adding the wage as one of the variables is that the number of these now exceeds the number of equations by one and the system could move with one degree of freedom; and if one of the variables is fixed, the others will be fixed too."

On p. 33 he writes:

> "The last steps of the preceding argument have led us to reverse the practice, followed from the outset, of treating the wage rather than the rate of profits as the independent variable or 'given quantity.'"

He then proposes to reverse this.

> "The rate of profits, as a ratio, has a significance which is independent of any prices, and can well be 'given' before the prices are fixed. It is accordingly susceptible to being determined outside the system of production, in particular by the level of the money rate of interest. In the following section the rate of profits will therefore be treated as the independent variable."

Profit is taken to be at a certain rate on the commodities used in production; but wages are not conceived of as being, as in the classical system, "advanced." Accordingly, profit is not at a uniform rate, from commodity to commodity, either on the value of the commodity or on the labour engaged upon it. Mr. Sraffa has similar difficulties to those that beset Ricardo and Marx on this point, and surmounts them. Prices are determined so as to yield a uniform rate of profit, commodity by commodity, on the commodities required for the production of each commodity.

I cannot find anything in this more elaborate account of price determination that justifies ignoring the influence of the commodity-mix that consumers wish to have.

Having proceeded so far, Mr. Sraffa adopts an alternative approach to price formation, namely by the method of "reducing" the commodities engaged in the production of other commodities to "dated labour": he resolves each commodity into the labour and other commodities required to produce it, working back through time until the commodities themselves constitute but a negligible residual. Prices are thus formed by adding together all the dated labour, the value of each segment being increased through time at compound interest. (In this chapter Mr. Sraffa is presumably reverting to the idea that wages have to be "advanced.") This treatment brings us on to ground with which we are all thoroughly familiar. It is in fact a labour (cum profit) theory of the cost of production. What is peculiar about this is that, in this alternative approach, the crucial part played by the relations between the excesses of each commodity produced over the amounts required for their own production disappears from view completely. The reader surely requires a little more help than the author gives him about how this conventional labour-cost approach can give the same result as the commodity approach supplied in the earlier chapters.

In the second part Mr. Sraffa proceeds to joint production. This may be taken to be the general case. The chapter heading ("Joint Production") raises the hope that now at last consumer demand must have some part to play, as it does so notably in the orthodox theory of a valuation of joint products. But it does not turn out to be so. Mr. Sraffa recognises the familiar point that in the case of joint production one cannot readily determine the quantity of labour required for each of the joint products. He meets this problem by considering that there may be more than one method of production. He assesses the amount of labour required for the production of a particular commodity by taking the same quantities of commodities to be used in two processes of production, and by assessing how much extra labour would be required to increase the product by one unit by altering the proportion in which the two processes are used. This looks uncommonly like the employment of a marginal product (of labour) theory, but we are warned in the preface that "instances will be made in these pages which at first sight may seem indistinguishable from examples of marginal production," but that they are not really so.

In the case of joint production the "reduction" to "dated labour" is said to be impossible, and, as joint production is omnipresent—Mr. Sraffa likes to think of a plant as jointly producing during a year both the commodities for which it is designed and also the partly worn fixed capital outstanding at the end of the year—, it follows that we must take the theory of price formation through the production of commodities by commodities to be the overriding one, and the more familiar approach by "dated labour" to be of not much help.

It may be permitted to refer to one of Mr. Sraffa's many subordinate propositions. He holds that—

> "the reduction to dated labour terms has some bearing on the attempts that have been made to find in the 'period of production' an independent measure of the quantity of capital which can be used, without arguing in a circle, for the determination of prices and of shares in distribution" (p. 38).

In other passages too he objects to the idea of a quantity of capital. In this passage he gives a most ingenious example of two industries in which the time *pattern* of the period of production is different. He shows how at a low rate of interest a rise in the rate of interest will cause a greater rise in the price of A, at higher rates of interest a rise in the rate of interest will cause a greater rise in the price of B and at still higher rates of interest a rise will again cause a greater rise in the price of A. This complicated example illustrates a point that could be more simply put.

In favour of the "period of production" the following points may be made. First, *at a given rate of interest* industries can be ranked as of greater or less capital intensity by the proportion that interest bears to the value of the product (which simply reflects the length of the production period).

Secondly, *at a given rate of interest*, improvements can be ranked as capital-saving or capital-requiring by whether they lower or raise the total interest payment as a proportion of the value of the product.

In the case of all the factors of production, there are two components in the proportion of the share of the factor in the value of the product, namely the quantity of the factor and its price—the latter may be its "opportunity cost." In the case of capital, however, there is this peculiarity. A rise in its price (rate of interest) also increases the quantity used, without there being any change in the physical processes of production, owing to the effect of *compound interest*. The mere fact that the opportunity cost of capital (rate of interest) becomes greater means that one has to do more waiting (forgo more present advantage), the physical set-up of production remaining the same, owing to compound interest; for one is forgoing, year by year, the higher net product of capital, as reflected in the higher rate of interest, that one could have enjoyed, had one used the said capital on a shorter process of production. This is the point that really gives rise to the "reversals" of the effect of interest increases in Mr. Sraffa's complicated example. While it is important to bear it in mind, it does not seem that it damages the usefulness of, still less that it creates ambiguity in, the concept of the period of production.

Such difficulties as have been expressed notwithstanding, it may be evident that Mr. Sraffa's approach to well-known problems from quite a new point of view is of absorbing interest. It is to be hoped, however, that he may proceed to set out the interconnections of his system with the traditional system, rather than treat his system as the "prelude to a critique of economic theory." Surely what is true in the two systems can have a peaceful co-existence.

R. F. HARROD

Christ Church, Oxford.

Inflation. By THOMAS WILSON. (Oxford: Basil Blackwell, 1961. Pp. 280. 30*s*.)

IN this thoughtful, agreeably written and temperately phrased book, Professor Wilson passes in review the whole complex of problems centering round the behaviour of the value of money in a society which aims at continuing progress and stability without abandonment of the principle of free enterprise. The plan of the book is somewhat complex and, naturally enough, does not entirely avoid repetition; so an attempt at signposting may be useful. After a preliminary chapter briefly documenting the course of events in Western countries since the War, Professor Wilson gives us (Chapters II—VI) his fundamental analysis of demand inflation, viewed as the result of "inconsistency of plans," and discusses the extent to which, in the absence of central intervention, "natural forces may operate either

to intensify and prolong a rise in monetary outlay or to weaken it and bring it ultimately to a halt" (p. 50). Thus we are led into the heart of "trade cycle theory" and into the outskirts, at least, of "growth theory"—fields in which the author's strong common sense and wide equipment of knowledge (especially of the crucial American experience of the 1920s) enable him to lead us instructively by the hand. Be it added that he makes dutiful use of the now customary macro-economic tools—multiplier, capital–output ratio and the rest; though it may be doubted how much of them is really left by the time he has finished with them (see especially p. 65, "This fact, unfortunately, has somewhat destructive implications for the Theory of the Multiplier as usually expounded and for the more elaborate analytical superstructures that have been erected upon it.")

After a chapter (VII) to which I shall return, and an interesting excursus (VIII) on how these things are done in Russia, we are invited to examine in more detail (IX—XIII) the weapons at the disposal of Central Authority for countering demand inflation. The various strands of the complex bundles commonly described respectively as monetary and fiscal policy are carefully dissected with special reference to British experience since 1951. In the course of the argument Professor Wilson endorses the Radcliffe Committee's criticism of the authorities for their long-maintained reluctance to conform, in their debt management policy, to the "natural" rise in the long-term rate of interest (p. 209); and himself criticises the same Committee for excessive pessimism in their estimate of the extent to which spontaneous increases in the velocity of circulation are likely to render nugatory a determined attempt to exercise control over the supply of money (pp. 180–4). In another interesting passage (p. 163) he states with force and moderation, though without definitely endorsing, the unfashionable case for the restoration of some effective legislative check on the creation of legal tender.

Professor Wilson would like to see more effective investment planning in those branches of industry which are already in Government ownership (p. 243), but is sceptical about wider projects for a national investment plan, and unwilling to find much place in his armoury for physical controls. This chapter of his book (XIV) will, of course, be found unacceptable by readers with a different outlook, but they may be somewhat mollified by the moderation of his language as compared with that of more boisterous exponents of the "free for all," and by his readiness to find room for various kinds of Government action designed to promote productive efficiency.

In view of the topicality and importance of the theme, it may be of interest to report a little more fully on Professor Wilson's treatment, in the chapter (VII) which I have passed over, of the nature of so-called "cost inflation," and on his suggestion in his final chapter (XV) for policy in the face thereof. As a matter of linguistics he is ready to agree that "demand inflation" and "cost inflation" can be regarded as separate and mutually exclusive categories, provided it is understood that the distinction "relates

to the initiating force that is responsible for the inflation rather than to the monetary conditions that allow it to proceed thereafter with cumulative force" (p. 91). Confining ourselves for brevity to the sub-category of *wage* cost inflation, we may summarise his conclusions as follows: (1) Provided the monetary set-up is sufficiently flabby, it is *possible* for such an inflation to get under way, if the "wage push" occurs over a sufficiently wide field, since the secondary expansion of demand caused by the increase in the wage-bill may operate quickly enough to cause employers to take an optimistic view of the possibility of raising their selling prices, and so may deter them from restricting production and employment in response to their enhanced wage costs (pp. 102–3). (2) What is known about trade union purposes and—differ as they do between themselves—about British and American collective bargaining procedures makes it *likely* that on occasion this in fact should happen (pp. 254–9). (3) There has been a tendency in some of the statistical literature to understate the part played by demand and overstate the part played by spontaneous push in the recorded rise in wage costs (p. 254); and in any case "without monetary restraint no other policy, however much planning it involves, stands much chance of success" (p. 259)—"the prevention of demand inflation must come first" (p. 272). (4) This being understood, "serious consideration should be given to the case for establishing a National Council on Wages and Prices," which "would not attempt to fix earnings or rates but would indicate how much could be granted without inflation" (p. 272).

A number of serious obstacles to the success of such a project are candidly pointed out; but the book ends on a note of qualified optimism about the whole problem, which it was perhaps easier to feel at the date when the author's prefatory note was signed (February 1960) than it is at the moment when this review is being written (July 1961).

There is no difficulty about reading "unemployment" for "employment" on p. 109, l. 5, and "deflationary" for "inflationary" on p. 155, l. 1. But I think rather extensive tinkering is needed to make good sense of the somewhat condensed discussion on pp. 249–51 of the relation between the figures of unemployment and unfilled vacancies. At the risk of being thought pedantic, I offer the following. P. 249: l. 12 from end of text, for "suggested" read "suggest"; l. 3 from end, before "be equal" insert "only." P. 251: first complete sentence to read: "The percentage unemployed has only to rise to something like 1½ to indicate the elimination of 'excess demand'"; ll. 9–10, for "excess demand has disappeared" read "'excess demand' appears."

D. H. Robertson

Trinity College,
Cambridge.

Economic Theory and Operations Analysis. An Introduction to the tools, results and reasoning of economic theory. By W. J. BAUMOL. (London: Prentice-Hall International (34 Beech Street, London, E.C.1), 1961. Pp. x + 438. 42*s.*)

THIS book is probably "more helpful to an operations researcher who wishes to learn economics than to an economist who desires a systematic education in operations research" (p. v). Nevertheless, the economist can learn much about operations research in operation. He is put into the middle of many practical jobs of operations research, which are viewed largely from the point of view of the operations research worker, and there is certainly something instructive about viewing the subject from inside rather than as "the audience." On the other hand, while much of the economic theory painstakingly taught in the book is very familiar to the economist, there are chapters (Chapter 13 dealing with Welfare; Chapter 14 on the Theory of Distribution; Chapter 20 dealing with the nature of Theory), which treat matters about which the economics student is often very confused. These chapters will be helpful to the serious student of economics. Professor Baumol's great clarity of thought and exposition are evidenced at many points, and show their value in the exposition of the problems and their solutions. He gives us a good idea of some of the limitations beyond which we cannot go without drawing in disciplines which are outside of the field of economics.

The reader is introduced to the subject of constant, increasing and diminishing returns. Here the author does perhaps fall short of his own high standard of clarity in terminology, in that he accepts the somewhat confusing current labels of, first, "the law of diminishing marginal returns" to indicate increasing marginal rate of substitution between factors of production and, second, the concept of "diminishing returns to scale" to indicate decreasing marginal increment of output for successive increases of all inputs (the proportion between them remaining unchanged). In the very little space he allows himself he does make known to the alert reader that there are really three different types of factor which can give rise to variable returns to scale:

> *Indivisibilities.* The technical fact that many types of production equipment cannot, due to engineering limitations, be effectively produced on a scale below a certain minimum, means that over a range of low outputs the cheapest method of production is relatively dear, but over a higher range engineering conditions allow of the use of more efficient types of equipment, and costs fall, bringing increasing returns to scale.
>
> *Limitational Factors.* The fact that "final co-ordination" or ultimate top level decision-taking has by its nature to be undertaken "centrally" makes it a factor which cannot be expanded proportionately

with expanding output. This fact is very noticeable to-day, when so many economic enterprises (such as electricity, transport, banking in this country) are concerns controlled in one sense or the other on a national scale. The manifest difficulties and breakdowns in running these are often traceable to the impossibility of effective communication and decision-taking. The short excursion (Chapter 19) into Decision Theory is therefore a welcome curtain-raiser to this part of economic theory.

External Economies or Diseconomies. The unsophisticated reader will hardly see the full implications for particular equilibrium theory, or understand the role of space in economic problems, from Professor Baumol's question " if we build three identical factories with identical work forces, equipment, and raw materials, will we not obtain three times the output of a single factory? " (p. 180).

Readers will enjoy the clarity of Chapter 20. A theory is not a hypothesis; it is " the construction of a simplified small-scale model which behaves in at least some ways like the phenomena under observation " (p. 390). Professor Baumol makes clear that a hypothesis as to fact is either true or false; whereas theory is a systematic explanation. " Basically, the need for theory arises because unfortunately facts do not speak for themselves . . . Facts supply us with correlations, not with structural relationships " (p. 391). Since an empirical generalisation " offers no clue as to how things work, it cannot tell us what will happen under changed conditions . . . a major advantage of a theoretical construct " is that " it permits us to understand the *structure* of the situation " (p. 392). Professor Baumol's book makes a welcome contribution in helping to bridge the gap between the now highly developed art of elaborating abstract models, on the one hand, and the real world, on the other.

H. MAKOWER

London School of Economics.

The Science of Wealth. An elementary textbook of economics. By C. F. CARTER. (London: Edward Arnold, 1960. Pp. vii + 183. 14*s*.)

As he tells us in his preface, Professor Carter is writing mainly for " those whose only acquaintance with economics will be a subsidiary course taken for a single year, and in particular . . . students in technology or science who want to get a general idea of the working of the industrial world on which they may depend for a living." The number of such people is growing rapidly, and hitherto they have been ill served by the established text-books, most of which appear to be designed primarily for the first-year student who is proceeding to an honours course. Here is a teaching problem about which Professor Carter has obviously reflected deeply, and he has given us a book

which is much shorter than most general texts and refreshingly different, both in scope and presentation.

Instead of starting with a rather abstract analysis of demand, the book begins, in a manner that should appeal to technologists, with a discussion of production. There is a short chapter on the sources of wealth, in which "ideas" and "organisation" take precedence, followed by "natural resources," "capital" and "labour." In a chapter entitled "the decision to produce" the reader is introduced to the diminishing-returns principle and to simple cost functions with the aid of some apt practical illustrations, numerical examples and a very little calculus; graphical illustrations, though occasionally used in the text later, are here relegated to an appendix. A further chapter on production discusses some complications, including joint products; monopoly and oligopoly; and differences between private and social costs. The treatment of monopoly and oligopoly seems well suited to an economics course for technologists, but is rather slight for a student pursuing an ordinary subsidiary course.

Only at this stage does Professor Carter insert a section on "the decision to spend or save," in which he covers most of the elementary demand theory with which many texts begin. The linking of this analysis with that of the decision to save enables the author to bring out in a striking and helpful way the similarities and differences between the decision to "purchase savings" and the decision to purchase any other good.

A short chapter on price determination combines elementary theory with some comment on actual pricing policies, and this is followed by a section on money and banking; here there is, perhaps, rather too much emphasis on the part played by the cash ratio in monetary control. One of the most original and stimulating chapters in the book is that entitled "paying the factors of production." The theory of rent as set out in most text-books is not discussed at all, but is very neatly assimulated with profits (after paying interest and depreciation) and abnormal earnings from work, under the general heading of "control over scarce resources." In his discussion of interest, Professor Carter makes the rather challenging statement that "there is very little case for interest on grounds of abstract justice; it is paid for the practical reason that the economic system would not work so well without it." Do neither abstaining from consumption nor surrendering liquidity involve any sacrifice which, in "abstract justice," is deserving of some reward?

The concluding chapters are devoted to macro-economics and cover the usual ground of the decision to invest, the multiplier, the balance between inflation and deflation, government revenue and expenditure and international payments. As in all the rest of the book, the subject is presented with great conciseness and elegance, with a minimum of technical terms and plenty of practical illustrations. A slightly surprising feature is that the chapter on national-income accounts comes at the very end of the book and not at the beginning of the macro-economics section. This has the big advantage that

the accounts of individual sectors have been discussed on the way, and the reader can thus be led gradually to the idea of an integrated system. On the other hand, there are some relationships, such as those between saving and investment, and between domestic demand and the balance of payments, that can be taught more easily to students who already understand a system of social accounts.

To cover so much ground in less than 200 pages is a formidable task of compression, and students will not find this book easy reading; it is, however, written with great clarity and with a constant eye on practical issues that should interest the scientific student. Moreover, it has the great merit of challenging the reader to further thought and not leaving him with the impression that he has been given " cut and dried " answers to his problems. For the very important purpose for which it is primarily intended, it is far ahead of anything else in the field.

E. Victor Morgan

University College of Swansea.

Volkswirtschaftslehre. By A. Mahr. (Second Edition.) (Vienna: Springer, 1959. Pp. 491.)

In these days the authors of outlines of economics for the use of students, and more generally for those who do not want to read the specialist literature, face the greatest difficulties in selecting the topics to be analysed and in deciding what is to be omitted. The choice is inevitably influenced not only by the author's personal preferences and views but also by the interest of the public in contemporary economic issues. The temptation to deal *in extenso* with these, and with the topics on which the author has specialised, is strong. Such difficulties and temptations inevitably confronted Professor A. Mahr, of the University of Vienna, when he prepared the second edition of his *Volkswirtschaftslehre*, as he admits himself in his Preface. The book is divided into ten parts and sixty-one chapters. In view of the importance of the indifference curve, of time and of money in modern economic theory, the reviewer has confined himself to a critical analysis of the views of the author on these few important issues.

Chapter 14 (pp. 76–85) deals thoroughly with indifference curves, and their meaning and the conclusions to be derived from them are very clearly set out. The author stresses, however, the unreality of indifference curves, unless individual commodities are replaced by groups of expenditures. In that case every indifference curve has to show the reactions of groups of individuals with a certain real income. As a matter of fact, and as already shown by H. Mayer (to whom the author refers), the indifference curve relies on the limitless substitutability of the commodities concerned. This leads to most unrealistic conclusions. The illogicality is increased, when more than two commodities are considered. The author believes,

and he is surely right, that at every income level there is only one ideal combination of the commodities concerned; it may, however, be incapable of being realised, owing to the inadequacy of the income concerned. It has further to be stressed that the demand for any two commodities is never independent of the consumption of other commodities, and this is another decisive argument against reliance on indifference curves. The ideal single combination may change owing to changes of taste, of customs, of income and of the needs to be satisfied. It has further to be noticed, as the author does, that consumers are usually influenced by advertisement, by their milieu and by what is customary. These reduce still further the reliability of conclusions based on indifference curves.

Chapter 15 (pp. 85–94) deals with the effects of future trends and expectations on to-day's activity and the decisions of all those concerned either as producers or as consumers. The impossibility of accurate forecasts leads the author to the appropriate conclusion that those who make the smallest mistakes in their anticipations are in the best position at the relevant time.

Chapter 38 (pp. 284–96) gives an outline of the author's views on the purchasing power of money. It gives him the opportunity to set out very clearly the argument and conclusions of the quantity theory, of the income flows theory and of the psychological theory, stressing the important difference that only the quantity theory relates both consumer goods and capital goods to the purchasing power available. Inflation and deflation, both in their modern meanings and their consequences, are also dealt with briefly.

Chapter 39 (pp. 297–308) examines the possibilities of the creation of money. Discount policy, open-market policy, reserve requirements and the purchase-sale of foreign exchange are submitted to brief analysis. I would argue that in practice these are only some of the methods of monetary policy available to influence the purchasing power of the monetary unit and the level of economic activity. That this is achieved, whenever efforts prove to be successful, through increase or decrease of money is a detail, though an important one; it should not lead us to forget the other methods available for the same purpose. These include efforts to achieve equilibrium, deficit or surplus in the budget, in respect of the use of a surplus or the financing of a deficit; changes of the margin requirements when the banks grant loans on the basis of marketable securities; the ceiling of credits granted, either by the central bank alone or together with the commercial banks in aggregate or in terms of sectors; the ceiling of the note issue; last but not least, the open-market policy, using gold and foreign exchange instead of bonds, for example, when public credit is low. In dealing with reserve requirements the author mentions the importance of the "Giralgeld-multiplikator," that is the multiplier showing how much deposits may increase or decrease with a given increase or reduction of the note issue.

He does not explain, however, why very often the results expected do not materialise. I fear that this chapter is not complete in itself, nor does it go to the root of the problem.

In Chapter 49 (pp. 349–60) the author tries to answer the question why neutral money or money with stable purchasing power should be the objective of the authorities responsible for monetary policy. The author favours efforts to secure stability of the purchasing power of the monetary unit, except on war or in the case of a very bad harvest. That means that under any other circumstances monetary policy should be designed to maintain price stability, except when a country is very much affected by foreign trade. In that case stability of the monetary unit's purchasing power has to be abandoned. It is well known that neutral money is an unrealistic conception, and I fully agree with the author's view. On the other hand, I cannot subscribe to his view that the monetary unit's purchasing power should be stabilised in terms of wholesale prices. I believe that the serious mistakes of monetary policy in the 'twenties all over the world were due in some measure to the choice of this mistaken criterion, and I think this is generally agreed.

Chapter 57 (pp. 428–48) deals with foreign-exchange rates and with the tendency of the balance of payments towards equilibrium. The author is naturally influenced by the income flows theory in trying to explain exchange fluctuations, and he takes account of the foreign-trade multiplier. His criticism of the purchasing-power parity theory is valid. But he does not distinguish sufficiently clearly the repercussions of foreign trade on nominal and real national income. In practice, they derive from the expenditure of the additional nominal incomes due to increased foreign trade and from the possibility of consuming export goods within the domestic market. The author is right in stressing these factors. But I fear that he has overlooked the fact that in these days payments abroad are made chiefly by telegraphic or telephonic transfers; that the stability of foreign-exchange rates may be secured, even with inflation or deflation at home, so long as similar inflation or deflation prevails abroad, or so long as the foreign balance of the central bank is allowed to fluctuate widely; and that in reality every country always has some measure of economic growth.

The book reviewed will be extremely useful to those for whom it has been principally written. The author has abandoned the old division between pure and applied economics which was the rule in German-speaking countries even twenty years ago, and takes full account of recent theoretical developments all over the world.

D. J. Delivanis

University of Thessaloniki.

Modern Banking. By R. S. Sayers. (Fifth Edition.) (London: Oxford University Press, 1960. Pp. viii + 294. 25*s*.)

This latest revision of a banking text-book, which was originally written more than twenty years ago, follows very closely on the heels of the previous edition published in 1958, which itself introduced major structural changes. Between the publication of the two editions, the Report of the Radcliffe Committee, in the deliberations of which the author played a prominent part, has been issued. Since that report contained some novel and controversial ideas about the operation of the financial system and the potentialities of monetary policy, one might have expected to find that they had been incorporated into the new edition. In fact, Professor Sayers, as he carefully explains in the preface, has set himself the much more limited task of slightly changing the emphasis in order that examination candidates in the immediate future may be able to rely on a text-book which has at least some post-Radcliffe ingredients. He does not deny the need for a more radical reconstruction of the book, but reasonably suggests that this should be postponed until some of the dust has settled on the discussion of the controversial ideas originally ventilated in the Radcliffe Report.

Various criticisms of this edition may spring to the mind of the reader only to be stifled by the recollection of the author's own recognition of the limited nature of the changes he has made. In view of the Radcliffe Report's emphasis on the growing importance of a variety of other lending institutions whose activities have an important influence on the amount of liquidity in the economy, one is constantly inclined to object that there is excessive emphasis on the banks as creators of credit and not enough on other institutions as suppliers of near-money assets. Similarly, one feels that, although more attention is given to the problem of debt management than in previous editions, a more thorough analysis of the interaction between monetary and fiscal policy might have been attempted. However, such instinctive reactions of the Radcliffe-indoctrinated reader fall to the ground when one remembers that the author has deliberately chosen not to be too ambitious in the scope of his amendments. These include a considerable simplification of the chapter which deals with the impact of external transactions on the banking system and a brief guide to the Radcliffe Committee's Report and Evidence.

Teachers and students of banking have every reason to be grateful that this standard work, which has withstood the test of time so well, has had a new coat of paint and that they can look forward with pleasurable anticipation to future major alterations of the structure. The book's obvious merits of lucidity of exposition and clarity of thought continue to guarantee it an assured place as essential reading for a degree course in economics.

G. Clayton

University of Liverpool.

Central Banking in South and East Asia. Edited by S. Gethyn Davies. (Hong Kong: The University Press (London: Oxford University Press), 1961. Pp. xi + 194. 27*s.* 6*d.*)

In the non-communist countries of South and East Asia there are a dozen comparatively effective central banks. In several countries these banks publish the most useful economic material that appears regularly. Generally they maintain a well-qualified research staff so as to advise the Governments on financial matters—whether or not their advice is accepted. Many of their problems are of interest beyond the boundaries of Asia. For example, several of the countries have economies heavily dependent on raw materials with sharply fluctuating prices. They need to develop new techniques of stabilisation, the central banks contributing through financial policy and selective controls over foreign exchange and credit. Nearly all the countries need to adapt, to the requirements of new national economies, an earlier system of foreign-owned exchange banks and indigenous banks with high interest rates and poor safeguards. All of them face problems of developing rural credit, usually among poorly educated peasants.

This book is designed to draw on the experiences of economists working with these different central banks. Some of the best Asian economists are in the central banks; and Dr. Davies has assembled an impressive list of contributors, including four directors of central bank research departments and one bank chairman. There is therefore, as one would expect, a good deal of useful material, presented clearly and concisely.

As a whole, however, the book suffers from insufficient editing and comparative analysis. Indeed, apart from a very brief introductory section, bearing little relation to the detailed material, it is hardly more than a collection of articles. There is no comparative statistical material, and the tables given for the different countries are not even listed in the table of contents. There is no bibliography, not even a list of the periodical material produced in European languages by the different central banks, which could surely have been given without difficulty. Nor has Dr. Davies succeeded in getting his material presented in a form that makes for easy comparability. The length and structure of the chapters vary with little relation to differences of subject matter.

These defects will diminish the book's value to students and general readers. Even specialists, who will be grateful to Dr. Davies for the interesting material assembled—and who will appreciate how much thankless labour goes to making such a collection in the region—will regret that he has given us so little of himself. Even his all-too-brief introduction is enough to show that a much fuller appraisal from him would have greatly increased the book's value.

Among the topics covered are the different devices used—generally

within the framework of a nationalised central bank—to ensure early impact of economic realities on the Government. These include legislation fixing reserve ratios (Indonesia) and ceilings on loans to Government (Korea); and constitutional provisions to ensure independent financial advice, including (in Ceylon and Indonesia) the publication of critical comment on Government policy. We are also given evidence of the ineffectiveness of interest policy in regulating Asian economies. Both in India and in Malaya—very different economies with initially similar financial mach[illegible]—the aim appears to be to create rapidly the money-market conditions in which such control would work more effectively. The book would have benefited by a longer chapter on Japan, analysing the central bank's more detailed controls of commercial bank interest structure there.

Dr. Davies is, however, surely right to stress the greater importance of foreign-exchange operations in Asian economies. We are told about the deflationary technique of requiring advance deposits by importers, against foreign exchange, in Indonesia and the Philippines; and the use of exchange control to stimulate industrial development in the Philippines. Multiple currency practices are now out of fashion in Asia, so we are told little about how these were developed in Korea and Taiwan (for example) and the different ways in which greater uniformity was achieved. A chapter on Thailand might perhaps have filled this gap.

The book shows us central banks stimulating rural credit, and using bank inspection to transform indigenous banking. The chapters on Pakistan and Viet-Nam both discuss financial problems of partition; but no comparisons are drawn. And we encounter the Korean war boom in several chapters with no connecting link. It is also perhaps unfortunate that there is nowhere a proper discussion of American counterpart funds, which have had a considerable impact on the currency history at least of Korea and Viet-Nam.

The book will be of interest to specialists in central banking and to economists concerned with South and East Asia.

T. H. Silcock

Institute of Commonwealth Studies,
London.

Public Finance. By E. R. Rolph and G. F. Break. (New York: The Ronald Press Company (15 East 26th Street, New York 10), 1961. Pp. viii + 586. $7.50.)

The aim of this book is, in the words of the preface, "to give a logical and coherent exposition of public finance setting out the theoretical and technical issues involved." Part I is a general introduction to the subject, incorporating data on the United States government revenue, expenditure

and debt. Part II discusses the principles of taxation, taking each tax in turn in the traditional manner. Part III is headed "Special Problems in Government Finance" and deals with such matters as public utility pricing, social security, transfers between governments and (one of the most interesting chapters) "the economics of metropolitan living"—roads, parking, housing, playing fields, etc. The final section, Part IV, deals with fiscal theory and policy, including two chapters on government debt management and operation.

There are a number of reasons why this latest American exposition of mainly American Public Finance should be praised. A wide range of topics is covered, including some (such as urban transport) which are commonly excluded; the exposition is clear and relatively concise; basic theoretical propositions are explained with ease and insight. At the same time one must have some reservations about it. The most important is that it fails to bring out the general equilibrium aspects of the subject satisfactorily. It really will not do in this day and age when government taxation is a large fraction of national income to discuss the effects of personal income taxes, corporate income taxes and the like as if there were no macro-economic effects involved. The simple truth that an increase in the yield of any one tax must be accompanied by some other change in Government Finances, be it on the revenue, expenditure or debt side, is just not brought out in any consistent fashion. It is also rather surprising not to find any systematic discussion of the fiscal aspects of long-term growth, especially as reference is made to books dealing with this subject.

A number of references are made to specific taxation problems of underdeveloped countries, but some of them do not inspire one with confidence (for example, the suggestion on pp. 208–9 that a net worth tax can readily be levied in underdeveloped countries leads one to think that the authors' knowledge of African land tenure must be somewhat limited). It might also be mentioned that the references to British taxation practices, welcome as they are, suffer from some inaccuracies. A little more investigation would have shown (p. 130) that the top marginal rate of personal income tax and surtax in the United Kingdom ceased to be 92·5% in 1959 and that Health Service charges are levied in other ways as well as on prescriptions (p. 361).

All in all, one must say that the idiosyncracies of this work are such that, although the student will find in it a clear and unprejudiced exposition of many important aspects of the subject, he should not be advised to rely solely on it for a synoptic view.

A. R. Prest

Christ's College, Cambridge.

Building by Local Authorities. The Report of an Inquiry by the Royal Institute of Public Administration. By E. LAYTON. (London: Allen & Unwin, 1961. Pp. 376. 40*s*.)

Building by Public Authorities is the fourth volume in a series of studies "on subjects of current importance to the public services," carried out by the Royal Institute of Public Administration. The study is thus naturally concerned with problems of administrative organisation rather than with economic problems as such. Hence a large part of the book is devoted to a careful examination, for different types of local authorities, of the membership of the committees and the organisation of the departments concerned with building. Much of this is necessarily dull reading for economists; but there can be no doubt that the information brought together, and the light thrown on the extraordinary variations in organisation, even between those authorities with much the same building functions, are valuable additions to public knowledge of local government organisation and problems. For economists the most interesting aspect of the investigation is the relation between these variations and the efficiency, particularly with respect to costs, with which local authorities carry out their functions both as owners and providers of buildings of all sorts.

Mrs. Layton's conclusions about the costs of local-authority building are very important and very depressing. She demonstrates that a considerable part of the responsibility for unnecessarily high costs lies with the Ministries chiefly concerned, the method of Treasury control, and what must be stigmatised as the general failure of public bodies to appreciate, or indeed to attempt to study, the conditions under which building can be carried out economically. Mrs. Layton makes it clear that whatever the variation of local authority organisation, there are fundamental weaknesses in the whole system. One of the most important is the short-period planning of building projects which is a feature of all government-controlled building, with the partial exception of the school-building programme organised by the Ministry of Education. Another is the continued failure of most local authorities to appreciate the importance of detailed preplanning of building schemes despite the innumerable reports which have stressed this matter since the War. It is clear from this study that radical re-thinking about the process of programming and planning of local authority building projects is essential if the building industry is to be able to operate really efficiently in this field. Mrs. Layton makes it clear, moreover, that unless and until the local authorities realise more clearly than they seem to at present that the organisation of the programmes of work of building firms involve time-tables of great complexity into which local-authority work has to be fitted, the influence of local authorities as customers of the industry may militate against cost reduction in the industry as a whole.

The part of Mrs. Layton's book dealing with the relationships between

the client, that is the local authority, the building professions and the building industry, is of particular interest to people specifically concerned with the industry. It appears that even within the local-authority service it is still difficult to mitigate the professional jealousies between architects and engineers, and to persuade either that quantity surveyors and builders have any knowledge that can possibly be relevant to the efficient and cost-reducing planning of a building project.

Mrs. Layton draws attention to the startling economies that have been realised on important building projects which have been based on co-operation from the beginning of all those concerned with planning and erection. Despite the publicity given to these experiments, Mrs. Layton found remarkably little evidence that attempts were being made to utilise the lessons learned from them, or even evidence of much interest in them.

It is impossible to survey all the topics of interest included in the investigation; two which are rarely examined should be mentioned, however: the use of members of the building professions in private practice by local authorities and the use of direct labour on building projects. The conclusions reached on these topics are perhaps among the most controversial in the book and should stimulate an interest in them which is much overdue. Important though they are, however, they should not distract attention from the fundamental general conclusion which emerges from the whole study. This is that the growth of local authorities as providers of buildings on an immense scale has been allowed to take place without any real consideration of the suitability of the usual methods of government control and of local authority procedure for carrying out the task efficiently or economically.

MARIAN BOWLEY

University College, London.

English Overseas Trade Statistics 1697–1808. By E. B. SCHUMPETER. (London: Clarendon Press: Oxford University Press, 1960. Pp. vii + 72. 45*s*.)

THE records of English overseas trade have been kept with meticulous care and in the minutest detail since 1697. The manuscript ledgers have long been accessible to scholars at the Public Record Office. Totals and extracts of dubious coverage have been printed and reprinted in a variety of sources and in an exasperating variety of versions. In view of the undoubted strategic and relative importance of international trade in promoting the first industrial revolution, it is an extraordinary thing that Mrs. Schumpeter was the first, and to date the only, scholar to attempt systematically to reduce the basic records to a usable form.

It was a gargantuan task, of course, for the eighteenth-century clerks were concerned with direction of trade rather than with its industrial

significance. Some commodity series were extracted from time to time in response to parliamentary demand; but generally the commodity trade is available only by country, and to find the comprehensive total for a particular commodity it may be necessary to extract eighty to ninety country figures. In compiling continuous series for about a hundred commodities and about half as many imports Mrs. Schumpeter and her collaborators covered some 15,000 large transcript sheets.

Unfortunately she died before the task was quite complete. The present volume was put together after her death by Professor T. S. Ashton, who writes an introduction which is in itself an important original contribution to the history of English eighteenth-century trade statistics. It is prefaced by a satisfying and revealing memoir of Mrs. Schumpeter written by her friend and collaborator Elizabeth Gilboy. The bulk of the volume consists of summary tables of quantities and values of the principal English imports and exports, photographed from the neatly written original manuscripts.

There is an immense amount of valuable material here that has never been available before, except at the cost of prohibitive labour by the individual scholar. For most of the principal items of import and export we now have continuous national series covering a period of about a century. The pity of it is that so much of the highly skilled labour that was put into compiling the series falls short of its proper return because the work was never finished. For Mrs. Schumpeter tackled the records in a characteristically scholarly fashion. Aware of the fact that the so-called fixed "official" valuations had actually been subject to occasional change, especially during the first two decades, she set out to produce a genuine volume index by adopting the prices in use in 1703 and revaluing all commodities accordingly. Had she lived to reach her objective, we should have had a continuous volume series for imports, domestic exports and re-exports, analysed by commodity and by country of shipment or first consignment. As it is, although there are obvious advantages in being able to express all the items relating to a particular commodity in terms of a common denominator (*e.g.*, to add pieces or yards or pounds or dozens of the various woollen products), it is doubtful whether the fixed-price valuation for most of the commodities listed here tells us any more, by itself, than the corresponding quantities, which are also given. For we lack the aggregates that would put them into perspective.

Professor Ashton has reprinted the ledger totals of English exports, imports and re-exports for the century 1700–1800, but it is clear that we cannot use Mrs. Schumpeter's commodity sub-totals in conjunction with the official overall totals. Direct comparisons are possible for the period 1772–91 because the transcript summaries show the ledger values for woollen goods as well as Mrs. Schumpeter's revaluations. Over this period her computed values for woollen exports vary from 112 to 130% of the

ledger figures. Her sub-totals for the principal non-woollen exports, however, amount to only 59–68% of the ledger totals for all exports other than woollens: for earlier years (*i.e.*, 1697–1771) they may be presumed to cover a smaller proportion of the total because they omit the corn exports.

The last leg of the journey seems short and easy in relation to the difficult distance already traversed. All that we need to complete the picture which Mrs. Schumpeter set out to provide are: (*a*) some quite significant items which have been unaccountably omitted from the present summaries (for example, corn exports 1697–1771 and cotton-wool imports 1700–71); (*b*) the additional minor commodities necessary to complete the overall totals; (*c*) subtraction of the Scottish trade included in the series for 1792–1807; and (*d*) the final cross-checking of data presumably extracted on different occasions (for example, reconciliation of the numerous discrepancies between the individual items for the years 1775 and 1780, both of which appear twice).

On the face of it, it looks as though it might take no more than a few weeks to complete the picture. Perhaps most of the material already lies in Mrs. Schumpeter's sheaves of figures and notes. But even if the final stages involve some more patient weeks at the ledgers, it is to be hoped that it will not be long before some enterprising economic historian takes the opportunity of consummating an important piece of research. So much intellectual capital has already been invested in this project that the end product should be uncommonly rewarding.

PHYLLIS DEANE

Department of Applied Economics, Cambridge.

The Economic Background to Agricultural Policy. By E. H. WHETHAM. (London: Cambridge University Press, 1960. Pp. xii + 147. 22*s.* 6*d.* Paper Edition 13*s.* 6*d.*)

MISS WHETHAM discusses agricultural policies mainly in terms of three issues, the level and distribution of farm incomes, their short-term variability, and agricultural adjustments in relation to nationally efficient allocation of resources—principally with reference to the rich countries, especially Britain.

She has concentrated on stating a body of doctrines with its supporting axioms against which current situations and policies can be identified and judged, rather than exploring in any detail the underlying concepts and techniques. Indeed, the basic theory is highly condensed, extremely simplified and often roughly hewn. One's judgment of the resultant analysis depends on the type of reader in mind. From the point of view of the economics student, there are many objections. For example, the crucial discussion of the slope and shifts of the aggregate long-run supply schedule (pp. 72–4 and 80), while bringing out many important points, leaves several

issues insufficiently explored. Again, the theory of the firm presented as an introduction to the discussion of marketing is imperfect competition without oligopolistic elements, plus discriminatory monopoly and, as the nearest to countervailing power, a paragraph on bilateral monopoly. Miss Whetham clearly appreciates the cost-raising effects of oligopoly in agricultural marketing industries and the need for countervailing power in many situations. But she provides insufficient connection between the basic theory and the facts.

But Miss Whetham indicates that her book is written largely to meet the needs of students of agriculture and practitioners in farming. On this basis, she has provided an extremely valuable addition to the literature. Her book does much, for example, to clarify the forces determining farm incomes in an expanding economy or what should be the role of government and farmers' organisations in promoting efficiency in marketing industries (more often, as she insists, by stimulating rather than checking competition). As a more specific illustration, her comments on the price-taking position of farmers facing price-makers in "uncontrolled" markets should help to check the too ready inclination of farm groups and their political supporters to draw erroneous conclusions from superficial comparison of price-making and price-taking situations.

Whichever group of readers is considered, there are other queries. Most important of all, has Miss Whetham sufficiently prepared her readers for the accelerated pace of adjustments in production and systems of marketing likely to be needed or to occur in the next decade? One might infer, especially in view of the book's strong historical emphasis, that the problem of balancing demand and supply at acceptable levels of farm incomes will continue to be no more unmanageable than since, say, 1953—a most doubtful inference. Then, she stresses how little the number of British farms has changed in the last century (pp. 66–7), but she hardly considers the economic disadvantages of small farms or the extent to which they have been protected against competition from larger units. She does not draw the necessary moral from the rapid decline in the number of farms in the United States which she describes later. As it is, unless small farms are increasingly subsidised, there may be considerably fewer British farms in ten years' time. Again, radical changes in marketing are probable, increasing the sizes of organisations rather than of individual plants. Vertical integration, often embracing production or retailing as well as intermediary marketing stages, has developed rapidly in the United States recently, and similar changes can be detected in Britain.

Two lesser points may be mentioned. First, as did the reviewer until recently, Miss Whetham follows a widely accepted view that, due to business uncertainties, British (and American) agriculture does not get its economically warranted share of capital. But is this so, at least to any significant extent? Borrower's and lender's risks in agriculture may well be matched

by those in other industries, and the tendency for the supply of farm products to grow more quickly than their demand, while not necessarily incompatible with the shortage-of-capital argument, should give pause for thought.

Miss Whetham has been content to accept policy objectives as given. Is this why she has not considered British agricultural policy in the context of close economic integration between the Six and the Seven and why, even though aid to low-income (farm) groups should not stop at the frontier, she has not examined the effects of agricultural protection in Britain (and in other rich countries) in retarding the economic development of much poorer peoples? Perhaps these and earlier criticisms would have been unnecessary if the book had been twenty or thirty pages longer.

G. R. ALLEN
Agricultural Economics Research Institute,
Oxford.

The Economics of Shipbuilding in the United Kingdom. By J. R. PARKINSON. (London: Cambridge University Press, 1960. Pp. xii + 227. 40*s*.)

THIS monograph is written primarily for economists but also incidentally, and somewhat patronisingly, for those "younger members of the (shipbuilding) fraternity who are concerned at present largely with technical matters and day-to-day administration but would welcome a wider view of the industry taken from a different standpoint." It is the economist, however, to whom the book will appeal so long as he is not put off by the diffuseness of the preface. The volume itself is the best discussion which has appeared in recent years of the problems of this important industry. History is used sparingly and only when it illumines the text; it is not employed as a substitute for analysis.

The opening chapter gives a brief but adequate account of the growth of the industry and is followed by an equally adequate description of its organisation, including a useful record of the industrial affiliations of its major firms, a careful study of the factors which affect the demand for ships of different types and an even fuller discussion of the factors which operate on the side of supply. Finally, there is a short, and rather disappointing, summary under the heading of "Efficiency and Prospects."

The demand for ships may be looked at first in terms of trends in seaborne trade, changes in carrying capacity, longevity and replacement, to which must be added, for the study of fluctuations, the investment and reinvestment policies of shipowners. The demand for the output of any country will depend in the main upon the state of competition in world shipbuilding, including the extent to which policies of national autarky are operated. Mr. Parkinson is probably right in thinking that the demand for dry-cargo vessels is unlikely to increase more than industrial production and more probably at a slower rate when account is taken of increases in carrying

capacity, which for the world fleet he puts at ½% per annum. Replacement demand is reasonably predictable over long periods, but highly variable in the short.

The significant change in modern times is the phenomenal increase in tanker tonnage as compared with the moderate increase in dry-cargo vessels. It is here, too, that increases in carrying capacity have been most marked. Between 1929 and 1958 the world's tanker fleet increased by four and a half times, although the number of ton-miles involved increased by seven times, partly because of an increase in the length of the average haul, but even more so to greater average speeds and increased size of tanker.

The intriguing, and still unresolved, problem of the industry is, of course, the problem of fluctuations. Mr. Parkinson's account of the contributions of Robertson, Einarsen, Tinbergen, Koopmans and others has the appearance of being cursory, but the relevant references are given for those who would go deeper. Explanations which depend, wholly or mainly, on technical factors, and which relate, in varying degrees of intricacy, replacements to the age of tonnage are not adequate, however interesting they may be as exercises. In any case, the influences which affect new construction may be more subtle than those which affect replacements, both in general and for particular types of trade. Mr. Parkinson does not attempt to guess the severity of demand fluctuations in the years which lie ahead.

> "It is possible that, with a rising demand for ships over the years, and with a much closer control of world demand than could be attempted in the first half of the century, fluctuations in demand and trade may be subdued; it is possible also that the avoidance of severe fluctuations in the output of the United Kingdom shipbuilding industry will become an accepted part of the responsibilities of the large shipping companies that place the bulk of orders. But in an international industry subject to competition from all comers, in spite of the device of shipping conferences, the prospects for voluntarily smoothing the flow of orders to shipbuilders cannot be viewed with equanimity and there is always the danger that unco-ordinated ordering of ships will exaggerate requirements at times and, in boosting the output of the shipbuilding industry, denude it of orders in subsequent years."

It might, perhaps, be suggested that an inductive study of the behaviour of shipowners in the placing of new orders and replacements would be a useful supplement to the studies of fluctuations which have already been made.

The competitive position of British shipyards, like much else in this book, is discussed cautiously. There is the preliminary comment that "far more has been done to reduce the cost of sea transport by technical progress than by increased productivity in the shipyard." But since technique is free to all, as shipyard organisation is not, economic factors remain the ultimate determinants. An analysis of the cost structure of shipbuilding and ship-repairing based on the 1954 Census of Production sets the general pattern, but the sub-

sequent discussion on the competitive strengths of different countries emphasises the statistical difficulties in making strict comparisons. Relative labour costs can change, relative steel prices and supplies can alter, as they have done in recent years. But there are other factors which are more persisting. Normally, the yards of the United States cannot compete without subsidies. In the United Kingdom ships take longer to construct than elsewhere. In view of recent controversies in the shipbuilding industry, one could have wished for a more positive contribution in this otherwise most useful volume.

D. T. Jack
University of Durham,
Newcastle-upon-Tyne.

Marshalls of Leeds, Flax Spinners, 1788–1886. By W. G. Rimmer. (London: Cambridge University Press, 1960. Pp. xiii + 342. 42*s*.)

It is true, as Mr. Rimmer points out in his preface, that most business histories concern firms which have survived and are therefore an unrepresentative sample of the industrial and commercial past. They may indeed be rarities, especially in the textile trades. His good fortune has been to acquire the surviving records of a long dead firm, and one can only share his wish that more studies of similarly defunct businesses will emerge, even while doubting that many will, if only because the death of a firm is so often accompanied by the total loss of its records—heaven knows, the records of old-established firms still with us have proved a vulnerable enough source. One shares this wish and regrets the likelihood of its wider fulfilment all the more on reading this excellent study of "an industrial dinosaur of Darwinian Age."

Mr. Rimmer's task has been made especially difficult by the partial nature of Marshall's surviving records—no order books, day books, wage books or journals—and he displays great skill and perception in his use of the remaining material and in supplementing it from secondary sources. Since in its day the firm and the Marshall family achieved high local prominence, the secondary material is happily abundant. Fortunately also, the surviving records, though somewhat mutilated, are singularly rich. Few business historians are likely to encounter the detailed autobiographical material which the introspective founder of the firm provided at three points in his life, nor the highly revealing records of internal dissension between the second and third entrepreneurial generations which clouded the later years of the firm's existence and goes so far to explain its demise. The third generation's talent for satire may not have made for business success, but it makes very good and illuminating reading, especially the parable "Concerning Some Commercial Monkeys" (pp. 289–91). This is very much the spirit if not the precise letter of the gloomy

popular saw "clogs to clogs in three generations." Neither the first nor the third generations of Marshalls ever knew clogs. John Marshall, the founder, came from a prosperous background, the capital for his industrial venture coming initially and mainly from the drapery business which he inherited from his father, whose estate was valued at £9,000. There remained sufficient salvage from the wreck of the firm in 1886 to enable the third generation to live comfortably, even if in reduced circumstances compared with the family's previous affluence and power.

The contrast between the attitudes of the successive generations is at the heart of this business history—between the strong acquisitive force of John Marshall striving for riches as a means to gain social status and the passiveness, inefficiency, ineffectiveness of his successors, rooted in the rentier attitudes and social position which John Marshall's success enabled them to enjoy. The details of the technology and economics of the firm and the personalities of the family are most skilfully presented against the background of the British linen industry and the West Riding economy. Quite apart from being a model business history of a particular firm, Mr. Rimmer's book is immensely valuable in the information which it provides about the fortunes of the parent industry—a British industry whose nineteenth-century history has been hitherto rather neglected. One odd omission is that there is no mention of Charles Gill of Nidderdale. His name is perpetuated in the "gill box," which was in important innovation, not only for Marshalls and the linen industry as Mr. Rimmer makes clear. It was also important in the worsted industry, in which it is still in use. Here surely was an inventor who deserved to be rescued from historical obscurity. The time lag of more than a quarter of a century between Gill's invention and its more general use in the linen industry is also a curious phenomenon which is not clearly explained. At the other end of the story no connection is made between the death of the firm and the linen industry in Yorkshire and the "Great Depression"—perhaps no connection existed, either way one would have liked to know. A work of this kind is, however, bound to raise questions, simply because it is not merely informative but also highly stimulating.

E. M. Sigsworth

The University,
Leeds.

The Industrial Revolution in Coventry. By J. Prest. (London: Oxford University Press, 1960. Pp. xi + 152. 21*s.*)

The title of this very valuable study is a little misleading to the reader unacquainted with Coventry's industrial past. The Industrial Revolution, as we know it from the Northern textile districts or the rest of the manufacturing Midlands, did not affect Coventry much. The book in fact describes the changes, not of a very startling kind, that touched the city's

industrial society in the middle of the nineteenth century, killed its old-established staple, temporarily introduced a new line and have nothing to do with the real transformation that was to follow: the advent of the modern pattern of engineering industries in the 1880s.

The book is perhaps best described as an investigation into the lingering death of the ribbon-weaving industry, taking into account not only the obvious changes in the structure of the market, which contracted both because of effective French competition after 1860 and because of the vagaries of fashion, but also the complex social and political factors in the Coventry scene. Mr. Prest has chosen well his central characters, beginning with George Eliot and her friend Charles Bray, and ending with local worthies such as the highly articulate ribbon weaver Joseph Gutteridge, the manager William Andrews and the Cash brothers, Quaker manufacturers with philanthropic instincts.

Coventry would not now be associated with the defence of outmoded principles almost unto death—yet that is the form the tenacity of its inhabitants then took. The further development of the City was practically prevented until 1845 by the existence of the Lammas and Michaelmas lands which had served local agricultural needs in the fourteenth century. The weavers ruined themselves by trying to enforce the price lists of the hand loom age fifty years after the power loom had become common in Lancashire. The price list was locally regarded as sacred by masters and men alike, and the magistracy considered it so much of a guarantee of stability and peace that they were parties to an association to protect this list whilst the Combination Laws were still in force, until the Assize judge declared it illegal.

One of the peculiar late and short-lived concessions to modern conditions in Coventry was the cottage factory. Essentially a compromise between the domestic system and the modern mill, it provided some of the advantages of scale and concentration, without violating the independence of the weavers. A steam engine was erected in the centre of a square or triangle of such factories, and power was hired out to the weavers, much as it was supplied to one-room workshops in Birmingham. There were many hundreds of such factories, and some are still standing to-day. Mr. Prest is a fine practitioner in that new art, industrial archæology, and his walks round Coventry have led him to a sensible reconstruction not only of the economics of the system but also the pattern of social relationships involved.

The turning-point for Coventry clearly came round about 1850. The watch trade, its origins lost in obscurity, springs into prominence—perhaps it is the counterpart to our conception of the prosperous mid-Victorian artisan with his watch chain across his waistcoat. This is Liberal England: the old local Tory oligarchy gives way to a new administration of men brought up in the Manchester school. They dislike price lists, and find it difficult to object to Free Trade. Gladstone may have regretted ruining

Coventry after 1860, but he did not lose the support of the town. Labour relations became more difficult. The weavers, like the miners, took to employing a regular lawyer to fight the case for the price list in the courts. They might yet have won, had it not been for the inevitable open warfare between the factory employees, who would have liked to see the trade competitive even if it meant lower wages, and the outworkers, who were prepared to go under so long as the list was honoured.

Occasionally, the story touches national trends, but even the boom of 1855–57 and the subsequent collapse finds an explanation only remotely connected with the general trade cycle. The city seems to remain a curious island of stability (and even of declining population between 1861 and 1871) in a sea of change. Even Charles Bray, the local philosopher, is a progressive only after the pattern of Owen, and as with Owen, his influence is not an ingredient of success in the structure with which he is directly connected.

Mr. Prest's volume is to be welcomed as a most useful case study to add to the growing list of books which teach the historian to be careful when he generalises about the growth of industrial England. One is grateful for the fact that he manages to keep the details as well as the pointing of the moral to a very readable minimum, and to resist the obvious temptation to blow up the great amount of material at his disposal into an indigestible compilation.

D. E. C. Eversley
University of Birmingham.

Guinness's Brewery in the Irish Economy, 1759–1876. By P. Lynch and J. Vaizey. (London: Cambridge University Press, 1960. Pp. viii + 278. 35*s*.)

This volume comes appropriately soon after the celebration of the firm's bicentenary, and will be followed by a second volume (by Professor S. R. Dennison of The Queen's University, Belfast, and Dr. Oliver MacDonagh) covering the period since 1876. The firm is to be congratulated on its choice of the director in charge of the history, Dr. A. H. Hughes, and on its choice of authors. All deserve congratulation for their skill in settling the demarcation line at 1876. It is perhaps ironical that, whereas in this earlier period Guinness's growing strength was linked with its ability to concentrate on a single product, namely porter (*vide* on p. 8: "Today April 1st 1799 was brewed the last ale brew"), to-day its struggle, not for survival but for further growth, is based on links with ale and other "outside" interests, while porter is rapidly disappearing from the affluent pub. It is perhaps an additional irony that it was in 1876 that Edward Cecil Guinness bought out his brother Arthur and became sole owner.

This book takes its good place in the sequence of studies of selected industries or firms or families, which have not only written an interesting and

entertaining chapter of history, but have also, by their examination of the background and of the decisive personalities, contributed something original and outstanding to our faint perception of why the thing ticks. Incidentally, there is no indication that at any time that fabulous animal formally called "economic policy," and more familiarly called "political interference," had anything to do with the firm's fortunes, save for some rather erratic changes in tax-rates before the Union.

The dominant question is why Guinness's secured a preponderant position in Dublin, and even in the British Isles as a whole and the export trade, that none of the English brewers achieved. The "external" answer to this question is given in the book's examination of the economic background, which offers many views on the growth and decline of Ireland's eighteenth-century economy which often differ from those hitherto accepted. In particular, the authors insist on the co-existence in Ireland of two separate economies, the maritime and commercial one on the coastal area from Belfast to Cork, and the primitive or subsistence one in the hinterland. The former was closely integrated, socially and politically as well as commercially, with the similar cash-using economies of Great Britain and the Continent. The latter was isolated, stagnant save in the matter of population and hardly cash-using. Between the two there was little contact, save that the latter provided a reservoir of labour for the former. The subsistence economy foundered in the Great Famine, and thereafter the invasion of the whole structure by the cash-economy proceeded rapidly.

It is possible that the authors over-emphasise this cleavage, and that their views on the causes of decline in both the Irish cash-economy and the subsistence-economy after 1815 are disputable, but there can be no doubt about the phenomenon, nor about its significance for the fortune of James's Gate. In the early period, until well into the nineteenth century, Guinness's sales outside Dublin and its immediate surroundings were mainly in England, and indeed the movement of the brewery to Holyhead was at one time contemplated. It was this English trade which permitted that specialisation on porter in 1799, the resultant economies from which contributed powerfully to the development of Guinness's preponderance. Sales in rural Ireland began to become significant only after the collapse of the subsistence economy, after the country was opened up by the canals and still more by the railways, and with the help of the restriction of illicit distilling.

The "internal" answer to the question asked above lies chiefly in the character of the Guinness family. Long-lived and prolific, every generation produced one or more members of high capacity, not only in business methods but also in choosing able lieutenants, who spent long lives in the business and trained up their successors. Among other personal elements, the authors point out the valuable "promotion work" done by the firm's agents in England and Ireland. The sketches of the characters of the leading members of the family and of the firm's staff are admirably done.

The book is altogether a fine piece of work and adds greatly to our understanding of Irish history and of how a great firm such as Guinness's grows.

G. A. DUNCAN

Trinity College, Dublin.

Economic Thought and the Irish Question, 1817–1870. By R. D. C. BLACK. (London: Cambridge University Press, 1960. Pp. xiv + 299. 37*s.* 6*d.*)

DR. BLACK has established his position as the authority on the documentation of economic thought in and about Ireland in the nineteenth century. This volume caps earlier studies. The bibliography alone (44 pages) is a thorough and indispensable work of reference for all who delve into Ireland's economic history, which has been as tangled and pointless as her political commotions. I am peculiarly gratified to learn that the Rockefeller Foundation has given Dr. Black a grant for cataloguing Irish economic pamphlets.

The field over which Dr. Black has taken command is a tantalising one. The tragic anomaly of Ireland's economic experience in the nineteenth century excited not only strong emotions, often misdirected, of anger and compassion, but also keen intellectual interest. As Dr. Black has shown elsewhere also, Irish economists in these difficult times contributed a flow of fruitful ideas to the growth of economic philosophy, a flow certainly fertilised in part by their anxious consideration of their country's circumstances. The bibliography shows how many acute economic intellects from elsewhere also applied themselves to the Irish paradox. The continuing interest of foreign scholars is exemplified by Professor Viner's foreword to this book, and Professor Fetter's work on the Irish currency.

One could hardly assert confidently that the efforts of the labourers in this corner of the barren vineyard of economics were crowned by successful "explanations of the past" or "lessons for the future." It is indeed clear from Dr. Black's analysis that the serious students found themselves baffled, and that Dr. Black feels that they were correct. The clue is to be found in generalising the last three sentences of the book: "In this respect concern with the problems of *land-tenure* tended to prevent consideration of the problems of *land-use* to a striking extent in nineteenth-century Ireland. Writers sympathetic to the tenants were always inclined to attribute all their faults to the manifest injustices under which they suffered and to gloss over the fact that many of them had a fair share of stupidity and cupidity, *which no land-reform would necessarily have altered.* While, therefore, the policy actually pursued in Ireland . . . may merit ample criticism, it deserves to be pointed out that, while *it would have been possible to design and carry out a better policy*, it could never have been easy" (italics mine).

The last phrase italicised seems unduly optimistic about the potentialities of " economic policy-making " in a given historical context. In fact, there *was* no " economic policy," any more than there *is* in our contemporary Irish Republic, or United Kingdom, or United Arab Republic. It is indeed a matter of the most abysmal doubt whether there exists any such thing as " economic policy," saving always the two cases of specific reactions to specific problems (for example, the Irish land legislation), and war (for example, territorial waters and " protection " in all its forms).

Against the specific tragedies and grievances of the Irish scene the administration reacts—often reluctantly, in response to violence, inconsiderately, too little and too late, unintelligently according to hind-sight and so on. Within the short period of vision vouchsafed to any of us, the reactions were rational and humane attempts to meet current problems of historical origin within the framework of contemporary knowledge. In poor relief, medical service, education, land-reform and other fields, Ireland was a proving-ground whereon many of the staple mechanisms of the " welfare state " were tried out against the background of a society which was really poverty-stricken, in grievous contrast with the " affluence " of the 1960s.

Perhaps Dr. Black liked his terrifying task of wading through the masses of literature, much of it dope, within his net. He has succeeded admirably in reducing it to a systematic and intelligible pattern, a task one might have thought impossible. It emerges clearly that the intellectual approach resulted always in a " solution " to a particular *institutional* problem; that many of the solutions proposed found their way into legislation, of which the chief monument is Wyndham's Act; that the legislative solutions were sensible within an economic matrix; and that they failed to realise the hopes of their proponents.

Nowadays, of course, it is common form among " progressive " economists to deny the validity of any economic matrix, and to substitute some kind of political divinity to shape our ends, but the Victorians had not sunk to that depth of defeatism. Why were their reasonable expectations—of an expanding economy based on peasant proprietorship, free access to demanding markets, abolition of inhibitions and privileges, stimulation of accumulation—defeated? Dr. Black's period ends on a note of promise, a hope that seemed during the succeeding generation to be fulfilling itself—but the *élan vital* was exhausted before 1914. The " why? " with which Dr. Black's authors struggled is still with us, under the different verbalism of " underdeveloped areas." In nineteenth-century Ireland well-meant and intelligent corrections of institutional " injustices " failed to produce the happy results their authors expected. Why? The answer suggested by Dr. Black's study is that both students and practitioners omitted the critical element of interest in life. It is not fair to say they left it out: they assumed it was present, whereas it was absent. The really shocking thing revealed is the absence of any *vivida vis animi* in the population concerned—and still more shocking is

the realisation that this is precisely the point of failure of current attempts to treat "under-development" institutionally by massive "investment."

Dr. Black presents his book as a "case-study of the relations between economic theory and economic policy." At first sight, accepting "economic policy" in its current meaning of an haphazard collection of pressurised decisions remotely related to an indefinable objective, this is all right. Dr. Black goes further, and has made his case, namely, that systematic economic thinking in the nineteenth century had a measurable influence on political decisions relating to Ireland. We can only regret that the measures taken, well-intentioned though sometimes wrong-headed, failed of their intended effect, and think somewhat wryly of the present-day import of the Irish Parliamentary Party's slogan that economic improvement was to be deprecated. The author has given coherent form to a mass of apparently intractable material.

G. A. Duncan

Trinity College,
Dublin.

In Hard Times. Reformers Among the Late Victorians. By H. Ausubel. (New York: Columbia University Press, 1960 (London: Oxford University Press, 1961). Pp. x + 403. 42*s.*)

The enfranchisement of the working classes in 1867 and 1884 and the advent of a persistent economic crisis in 1873 created unique circumstances in which social critics of all kinds could breed and flourish. Late Victorian England thus became the golden age of reformers. "Never since the Puritan Revolution," claims Mr. Ausubel, "had such an intensive re-examination of the structure and processes of English society taken place." His study sets out to describe this social and political re-examination, and draws its evidence from a most impressive array of manuscript material. Both in its theme and in its sources this book promises much.

But that initial promise is not fulfilled. Partly this is due to Mr. Ausubel's method. He spends most of his time describing the content rather than evaluating or explaining the social criticism of the day, and does this by quoting extensively from letters written chiefly by contemporary literary and political notabilities. As, however, the objectives of Late Victorian reformers were so manifold, and have naturally to be set in their context, the twenty-one chapters of this book, covering social, religious, intellectual, economic, political and imperial themes, can do little but recount familiar events and garnish them with contemporary comment. Sometimes these observations do throw fresh light on familiar scenes and attitudes—especially those concerning fears of German and American economic competition, the internecine strife among Irish Home Rulers and the influence of Henry George. But on the whole this book adds disappointingly little to our knowledge of the period.

Nor does it much enhance our understanding. For Mr. Ausubel seems too overwhelmed by the task of arranging his complicated jig-saw of quotations to do much in the way of judging the results. At times this book becomes a mere string of quotations or paraphrases, joined together by extraordinarily naïve remarks from the author. Indeed, Mr. Ausubel seems so loath to discard any morsel of information which he has discovered that his book is overloaded with trivial personal titbits, unnecessary historical retrospects and much irrelevant fact. This is all the more irritating in that the author spends so little time discussing or proving some of the more profound issues which his work raises.

Its very title, *In Hard Times*, poses a question which the author does not consistently explore. Were Late Victorian times so uniformly hard, so persistently and generally full of distress as Mr. Ausubel would have us believe? Using literary evidence, the inherent bias of which he never discounts, Mr. Ausubel describes the economic history of the period in terms of a Great Depression between 1873–96 and a period of recovery thereafter—though these concepts have been very seriously qualified, if not actually exploded, by recent historical work. Instead of closely relating various reform movements to the complicated and variegated economic realities of the time, Mr. Ausubel invokes a vague "general distress" which afflicted all sections of society during the period. Though he admits occasionally that the working masses improved their standard of living, he scarcely considers the implications of this fact (and the setbacks suffered by the workers after 1900) for his thesis or his title. But then the opinion and experience of the working classes play a surprisingly small part in a book which purports to describe a situation caused by their emancipation and sufferings.

Still more surprising is Mr. Ausubel's handling of the organisation and achievements of his reformers. Matters of organisation have no interest for him. Thus we hear nothing at all about that unique and highly important effort towards concerted social action—the Social Science Association, formed in 1857 and surviving until 1886; and nothing is said of the methods, mood and technique of social reform typified in the Charity Organisation Society. Charles Booth, whose work opened up new lines of social analysis and exercised a profound reforming influence, gets just one, purely incidental, mention.

Similar idiosyncrasies mark Mr. Ausubel's summing up of the achievements of Late Victorian reformers. "They made it a good old English habit to expose abuses and agitate for change," he claims. But what of the legions of reformers in the period 1830–67? Surely the habit of self-criticism was ingrained long before Victoria's reign reached its half-way mark in 1869? "They compiled an impressive record of achievement," he says. But did they? Even if we count the Gladstone–Disraeli reforms as Late Victorian, many of them (on health, housing and factory affairs,

for example) had been propagated by Mid-Victorians, and certainly cannot be put to the credit of Mr. Ausubel's Late Victorians. "Judged by any valid historical standard," he writes, "they stand out as a remarkably successful lot." But do they? Can the reforms of the 1880s and 1890s really compare with those of 1830–50 or those of 1906–14? Surely one of the most obvious features of Late Victorian reformers was their lack of success: socialists, Home Rulers, single-taxers, secondary educationalists, protectionists—none of the groups described in Mr. Ausubel's book had achieved its principal objects by the time of the old Queen's death. How can the twenty odd years beforehand be called an "age of fulfilment"? Mr. Ausubel never explains the discrepancy that while the Late Victorian years of so-called "depression" saw relatively little fundamental reform, the ensuing Edwardian–Georgian epoch of so-called economic "recovery" witnessed something of a social and political revolution. But this is not surprising considering his treatment of the years 1901–14. Characteristically basing his judgment on the comments of a few disgruntled reformers, he pronounces these years of constitutional upheaval, international menace, industrial strife and widespread violence as marked by "public apathy" and "indifference"!

These few examples illustrate the historical insight of this book.

R. J. Lambert

Sidney Sussex College,
Cambridge.

American Economic History. Edited by S. E. Harris. (New York and London: McGraw-Hill, 1961. Pp. ix + 559. 62*s*.)

This book is described by its editor as "a handbook volume on American economic history." Apart from being an anthology, it is an unusual handbook in two ways. First, there is the general arrangement of subject matter. This is in four parts: Major Issues; Issues of Policy; Determinants of Income; Regional Growth. The first of these sections deals with such matters as innovations, structural changes and trends. The second and third parts, however, are not very distinct, a chapter on Economic Fluctuations, for example, appearing under Broad Issues of Policy, while another chapter on Natural Resource Policies is included under Determinants of Income. Nevertheless, all important topics usually covered in a text-book of economic history appear somewhere, and the arrangement, obviously by an economist, is a hopeful new line of approach. The second peculiarity of the book is its time-span. American economic history here means the history of the United States. There is nothing on the years before 1790; and as the authors have for the most part a fondness for using time-series, there is a good deal more on the years after 1850 or thereabouts—still more on the years after 1900—than on the years before.

As a text-book, is *American Economic History* likely to serve a useful purpose? Certainly it will. But, like all text-books, it has its weaknesses. Abandonment of the general historical sequence of events makes a grasp of the general course of development more difficult. Thus the student who reads about the " crime of '73 " in Chapter Four must wait until Chapter Thirteen (on labour movements; where he would hardly be likely to look) and Chapter Fifteen (on agriculture) before he can form any reasonably comprehensive idea of what all the fuss was about. Also, it is not quite clear what type of student the authors have in mind. Some of the " economic " explanations are exceedingly elementary—so elementary as to suggest that readers are expected to have no previous knowledge of economics. Such readers, however, are not likely to find the chapter on money, or Dr. Achinstein's very business-like chapter on Economic Fluctuations, at all easy to digest. Most surprising, the coverage, while general, is distinctly uneven. A fairly elementary but exact chapter by Professor D. C. North on international trade fills a gap which is often rather obvious to non-Americans in American economic histories. But there is very little indeed on industry. And two very thoughtful but also very long chapters on labour by Professor Ulman make this omission the more noticeable.

Despite these reservations, this is a very interesting supplement to the more orthodox volumes. Every chapter is very competently done, though not all read as pleasantly as Professor Peck's stimulating chapter on transportation. Tables of figures are plentiful and up-to-date—anyone wishing to lay hands quickly on the more obvious kind of data will find no more convenient source than this book. The chapters bring together a lot of interesting information and comment. And each chapter ends with a considerable and admirable list of references.

A. J. YOUNGSON

University of Edinburgh.

The Crown and the Money Market, 1603–1640. By R. ASHTON. (London: Oxford University Press, 1940. Pp. xvi + 223. 25*s*.)

DR. ASHTON'S study is important for two reasons. It makes a valuable contribution to our technical knowledge of seventeenth-century public finance: and it helps to unravel yet another theme in the involved counterpoint that led up to the civil war. Briefly his argument is that in 1603 there entered upon an already developing money market of private borrowers and lenders a needy borrower seeking funds on a scale that created new problems and new methods of meeting them. This was the King, and his needs were of two kinds: to anticipate those fluctuating and irregular sources of income that were actually his, and increasingly, to borrow money to bridge the gap that was growing between his revenue and his rising expenditure. Both types of loan made demands far greater

than could be met by individual lenders. Hence the appearance of collective lenders, syndicates and groups, each member of which in turn raised money from other individuals: in a crude sense, bankers.

Of these the Customs Farmers were to be the most permanent, and their function was consecrated by James's decision in 1604 to vest the greater part of the customs revenue—itself of rapidly increasing importance as an element in the royal income—in the hands of business men. They, in return for an annual rent, were given the right to collect and appropriate the customs duties. With good security, the farmers were willing lenders—"the spoilt children of government borrowing" as Dr. Ashton calls them. Not so the Corporation of London, who lent irregularly and virtually under duress. Like others to whom the Stuarts were obliged, the Corporation was rewarded by bad faith and double dealing. The combination of bribery, bullying and sharp practice employed by James and Charles in their relations with the City go some of the way to explain the relations of Crown and City on the eve of the civil war. By then, the royal credit had touched bottom, and in 1640 the Corporation refused to lend any more until Parliament had been summoned. The hand-to-mouth finance of father and son was at an end. Herein, as Dr. Ashton says, lay "the germs of parliamentary control of the government's ability to borrow." Yet, as always, the pattern of political alignment was not simple. The old story of a straightforward, natural and mutual antagonism between Crown and City does not survive Dr. Ashton's rigorous analysis. There was also "a significant and powerful minority in the London business world possessing a compelling interest in the survival of the old regime."

Time was when historians were inclined to regard the early Stuarts as the hapless victims of social and economic changes over which they had no control—the price rise in particular. Professor Tawney's recent study of Cranfield went a long way to discredit this view and to emphasise the uncontrolled extravagance that exaggerated the royal problems and worsened relations with almost everybody. Dr. Ashton reinforces the case. Heavy borrowing was no longer confined to situations of national emergency, save in so far as "the very presence of James on the throne was emergency enough in itself." While the old foreign sources of loans dried up—Flemings, Italians and Dutch—the new lenders were Englishmen or at any rate naturalised Englishmen. Their services were indispensable and, as they grew more so, the stronger became their hold on those privileges which only the King could dispense. The web of economico-political relations becomes ever more tangled, the consequences more unpredictable. Only the doubts and resentments grew, like the debts, inexorably.

This is, first and foremost, a study in public finance executed with a precision that leaves a reader confident that the work will not (as in some similar cases) need to be done again. The author does not push his con-

clusions too far into the political field. For the most part he is content to supply the material for the political analyst, making only tentative suggestions as to how it may fit into the pattern of political explanation. But here as elsewhere his suggestions are crisp and to the point. His earlier articles on public finance have already become indispensable to students of the early Stuart period. Here they are bonded into a major study at once fluent, masterful and definitive.

Only once does he carry his scholarly determination not to exaggerate the importance of his discoveries to a point that seems to the reviewer unnecessarily modest. The expedients with which he is concerned are significant, he says, not as the prototypes of modern credit institutions but "as the early stages of a process of elimination." In short, they do not anticipate the machinery of the national debt in its later form. In the strictest sense this is no doubt true. But in a more general sense the rise of deficit borrowing surely had a real, if indirect, significance for the future. The financial Vicars of Bray had made their appearance, and some were to survive in person the later changes of government and ideology. Customs farming continued into the later Stuart period. The national debt did not spring up unheralded by a process of trial and error. The multiple links that bound it to the past have not been studied closely enough to enable us confidently to eliminate from its antecedents the influence of these early experiments. He would be an unwise student of the later institutions who failed to take careful account of Dr. Ashton's analysis of this embryonic system.

CHARLES WILSON
Jesus College,
Cambridge.

The Machinery of Local Government. By R. M. JACKSON. (London: Macmillan, 1958. Pp. xii + 360. 30*s*.)

Financial Administration in Local Government. By A. H. MARSHALL. (London: Allen & Unwin for the Royal Institute of Public Administration, 1960. Pp. 392. 32*s*.)

THERE is a very general impression that in Britain local authorities as independent entities are vanishing from the scene, swept into the vortex of central government control in the interests of fiscal policy and interlocal income redistribution. The two books under review here are timely reminders that this is far from being the case. Not for nothing has local expenditure grown about two and a half times since 1949, and local rate collections by about two and a quarter times. In spite of the loss of important trading services, their diverse activities have become still more widely spread as a result of post-war legislation in the fields of health and welfare services.

Mr. Jackson's book is a straightforward account of the structure of British

local government, written primarily from politico-legal point of view, and hence is of limited interest to economists, notwithstanding that his chapter on finance runs to 75 pages. In fact, the book contains very little analysis of any kind, and I should imagine that its main interest would be for readers on the Continent, where the spread of international investment in Common Market countries is raising complex problems due to the diversity of local government systems, and where consequently alternative solutions are being eagerly studied.

Unfortunately for Mr. Jackson his book was written before the enactment of the important and far-reaching Local Government Act 1958. Dr. Marshall has the advantage over him here; but in general also his book is a much more substantial contribution. Indeed, there is scarcely any aspect of financial organisation and practice which is not discussed and illumined by Dr. Marshall's treatment. Coventry, where Dr. Marshall has been for many years Treasurer, is unquestionably one of the best-run cities in the country. Its local government problems are of particular interest, both on account of the difficulties inherent in its rapid growth (implying that the great majority of its citizens are immigrants with no local roots) and also for its highly successful " operation phœnix " after the blitz.

Dr. Marshall also has wide experience of local government overseas, in the Sudan, the West Indies and East Africa. He draws on his personal experience with great penetration and admirable balance. Although the reader is confronted with nearly 400 closely reasoned pages which demand his full attention, the exposition is extremely clear. The chapters are kept short; each has an introductory summary and is then divided into subsections. One can hardly imagine a local finance committee or department in this country which would not benefit from Dr. Marshall's book. This is even more true of councils and officers overseas, where the art of financial management is still often in its infancy.

After an introductory chapter on the internal organisation of local authorities Dr. Marshall goes straight to the principles of financial organisation. He emphasises here (and indeed throughout the book) the fundamental need for financial integration, for considering the plans and demands of each Department as parts of a rational whole, and not as a mere aggregate of separate and often competing ideas. From this Dr. Marshall passes to consideration of the Finance Committee, its optimal size and membership, its relations to the Chief Financial Officer and the Council. Next come a group of important chapters on the Chief Financial Officer and his Department. It is strongly recommended that all but the smallest Authorities should have a separate Department charged with Finance. After discussion of the relative merits of organising this Department by function or by service it is concluded that the more useful breakdown is by service. Indeed, there are some advantages in a certain amount of functional integration, for instance of the financial control and accounting sections.

The next five chapters are in some sense the core of the book. They are concerned with the various aspects of the work of the Chief Financial Officer: as financial adviser, as accountant (including machine accountant), as internal auditor, in connection with costing and related matters and finally in relation to the financial responsibilities of the Clerk to the Council. Although Committees should be encouraged to work out the financial implications of their own plans, it is necessary for the Chief Financial Officer to have complete charge of the accounts. Only thus can (*inter alia*) an optimal division in the allocation of record keeping be made between the Departments and the Finance Department.

This does not imply that it is not desirable to decentralise financial responsibility wherever possible; but the technical officers in the different Departments should, however, be in close touch with each other and with the Chief Financial Officer, so that differences are ironed out before plans are put to Councillors. In this connection it is interesting that the O. & M. Department of the Treasury, when making a survey of the organisation of Coventry, recommended that each Department should have a Finance Officer more or less on the lines of Accounting Officers in the Departments of the Central Government. In large Authorities this should promote departmental responsibility, while ensuring that the Finance Department is fully and continuously informed, a state of affairs that occurs naturally in a small authority without the need for elaborate machinery. Deliberate decentralisation in the large authority is the more necessary, since mechanisation (especially the use of expensive electronic machines) inevitably tends to centralisation, in order to secure capacity usage.

This section of the book is followed by four chapters dealing with practical matters of a more routine nature: payment of accounts, collection of income, purchasing and contracting. The remaining section is devoted to the local budgetary process. Here Dr. Marshall has things to say which are important for any Authority, notwithstanding the great diversity in their size and complexity. Local budgets are complicated by the fact that the Authorities themselves are both legislative and executive bodies, unlike the Central Government. For Dr. Marshall a local budget is emphatically not just a list of Departmental activities added together (perhaps subject to a little pruning in the Finance Department if it looks as though rate poundages would have to be raised). The budget must be an integrated whole, at one and the same time a balanced plan and an instrument of control. Indeed, in view of the combination of executive functions and of accounts kept on an accrual basis, the local-authority budget has almost as much in common with that of a firm as with that of a governing body.

Dr. Marshall believes strongly in the benefits of a separate current and capital account. For the former, which is the principal instrument of control, he recommends the great accuracy of cash accounting in the first instance; this can then be converted to an accruals basis. For capital works

Dr. Marshall recommends individual project records which show at a glance the extent to which progress is in alignment with planned costing and timing. It is in respect of longer-term capital plans that local-authority practice is found to be most deficient. They need to draw up capital estimates (which are not, of course, appropriations) for a period of three or five years ahead. In fact, local authorities are already finding that they will get better results from the new General Grant if they do this.

As will appear from the above, Dr. Marshall's book is "severely practical," and this is his avowed aim. But it is practical in the best sense of having a firm base in principle and experience.

URSULA K. HICKS

Oxford.

Trade Union Officers. A Study of Full-time Officers, Branch Secretaries and Shop Stewards. By H. A. CLEGG, A. J. KILLICK and REX ADAMS. (Oxford: Basil Blackwell, 1961. Pp. xiii + 273. 32*s.* 6*d.*)

THIS book draws attention to the large number of preconceived ideas in current circulation concerning the number, quality, background, attitudes, duties and functions of trade union officers. Many of these ideas, it suggests, are based on no firm foundation of factual investigation. Consequently, the main objective of the study has been to discover the facts and set them down so that future discussion of the subject may be more informed.

There can be no doubt that the study elicits a vast amount of factual information which has not previously been assembled. Nor can there be anything but admiration for the ingenuity and assiduity with which the authors have wrestled with the evaluation of their research. There are, however, so many variables in the overall pattern of trade union structure that it is difficult to isolate individual topics, even of the importance of those dealt with in this book, and draw fruitful lessons for reform from a comparative study. A more hopeful approach to the question of trade union reform may be that of overall study of individual unions on the lines of Mr. Clegg's own book about the National Union of General and Municipal Workers published in 1954.

The diversity of trade union structure is well illustrated by the problems which the authors faced in arriving at any satisfactory definition of the various categories of trade union officers with which the study deals. Certain types of trade-union officer, such as full-time branch secretaries, are to be found only in a few trade unions, even there not necessarily throughout the unions concerned, and it is sometimes not easy to say whether a particular category is full-time or not. The powers and duties of trade union officers vary with the form of union structure, for example, whether the branch is based on the works or on the locality. The interpretation of attitudes disclosed by questionnaires addressed to the various types of trade union officers

and personnel officers in different unions and industries raises a host of problems in itself. The conclusions drawn by the authors are, however, usually plausible and, in any event, the bases for arriving at them are fully argued.

Among the large number of topics affecting trade union officers on which conclusions are drawn and inter-union comparisons made, perhaps the point most closely pursued to a conclusion is that of the ratio, which varies considerably from union to union, of the average number of members to persons performing full-time trade union duties. Many reasons for this variation have been advanced. The authors conclude that the fundamental reason is the force of tradition and habit in each union; so that the number of officers has tended to determine the work done by them instead of the changing pattern of trade union work determining the number of officers.

Other conclusions will be found more surprising and sometimes more controversial, for instance, that personnel officers prefer dealing with shop stewards (or other lay officials) rather than with full-time officers; that there is a sufficient source of supply of trade union officers; that post-war nationalisation has not denuded trade unions of officers; that rates of trade union salaries are not a deterrent to recruitment and retention of officers; that trade unions are not so bad employers as they are painted; that losses to trade union recruitment of full-time officers as a result of higher education are exaggerated. On these topics, however, as on others, not only the conclusions but also the facts and the arguments on which they are based are set out in the book; the reader has the material on which to concur or dissent, and that is what the authors set out primarily to supply.

It is a tribute to the personal qualities of the authors that they have been able so largely to overcome an obstacle which hampers many who seek to investigate trade union affairs—the securing of trade union co-operation. The evidence which appears in the book itself of the limitations imposed on authors by respect for confidentiality of information is a price worth paying for what is disclosed.

H. S. KIRKALDY

Queens' College,
Cambridge.

Breakaway Unions and the Small Trade Union. By SHIRLEY W. LERNER. (London: Allen & Unwin, 1961. Pp. 210. 25*s*.)

THIS book deals with conflict in trade union organisation. On the one hand, there stands the principle, believed by some to be a fundamental human freedom, of the right of the worker to form and join the organisation of his own choice. On the other hand, there rests the practical aim of preventing the fragmentation of the trade union movement which may render it ineffective for achieving the purposes of organisation. The conflicting forces surrounding these two concepts of trade unionism are here examined

in relation both to general principle and to case studies of the Chemical Workers' Union ("The Small Trade Union") and the United Clothing Workers' Union and a number of seceding unions in the Post Office ("The Breakaway Unions").

The causes leading to separatism—if one may employ a neutral term to cover all cases whether officially "breakaway" or not—are various. In the cases here dealt with they include differing conceptions of organisational, political and industrial aims of trade unionism, racial and religious conflict, clash of strong personalities, but perhaps above all the desire of specialist groups not to be submerged, neglected and outvoted as members of industrial and general trade unions.

The forces arrayed against such efforts at separatism are formidable, and are effectively illustrated by the cases here dealt with. The forces include the opposition of established trade unions, powerfully reinforced by the resolutions of the Trades Union Congress; failure to secure recognition from employers often, though not always, because of the opposition of the established trade unions; and a consequent failure to secure local or national negotiating rights on behalf of their members. Faced with such forces, it is hardly surprising that the mortality of breakaway unions is high, and many have vanished without a trace. The emergence of breakaway unions has, however, served often to provide the impetus to trade union reform designed to deal with the originating causes of the breakaway. This is seen to some extent in the study relating to clothing workers, and particularly in that relating to Post Office engineering workers.

The case of the Chemical Workers' Union is rather different, both in origin and solution, from that of the breakaway unions. Officially it is not a breakaway union, although it has been so described and so treated by some of the more powerful unions in the field which it seeks to organise. It was in fact a member of the Trades Union Congress for a short time in the 1920s, but it withdrew on organisational grounds, and eventually lost most of its national negotiating rights. The story is here told of its struggle in face of massive trade union resistance for re-affiliation to the Trades Union Congress, which it achieved in 1943, and for national negotiating rights, which is not yet solved.

Dr. Lerner discusses various ways in which the conflict which she describes in her book and the harm which it does to the trade union movement could be remedied. The one she favours is a form of decentralisation of trade union structure and negotiation with a view to removing the causes of trade union fission and fragmentation. It is clear that the trade unions must do something to reform the organisation and powers of the branches, which have become the critical level of many trade unions. Whether the exact solution proposed by Dr. Lerner—and particularly the proposal for local agreements—might not create other, if not worse, ills has been debated elsewhere and need not be pursued here.

Dr. Lerner's search for means of removing the causes of secession is certainly a more hopeful approach than would be any endeavour to secure rights for those who do secede. The rules which the trade union movement has established for governing inter-union relations are a powerful force for preserving existing spheres of influence and maintaining the *status quo*. There appears little likelihood of the trade union movement voluntarily according recognition and rights to groups, large or small, which desire to secede from the existing trade union set-up. Without such rights and recognition, seceding groups seemed doomed to failure as an effective form of organisation.

H. S. KIRKALDY

Queens' College,
Cambridge.

Ownership, Control and Success of Large Companies. An analysis of English industrial structure and policy, 1936–51. By P. SARGANT FLORENCE. (London: Sweet & Maxwell, 1961. Pp. xiv + 279. 63*s*.)

ANY study which emphasises the wide diversity among large companies is to be welcomed as a corrective to the prevalent picture of the giant corporation, controlled entirely by its managers with attendant hordes of Organisation Men, as the archetype of company organisation. Professor Florence's sample of companies, whose fortunes and ownership pattern he compared in 1936 and 1951, consisted of 315 industrial and commercial companies and 35 breweries, comprising all companies with issued capital in 1951 of £3 million or over and a proportion of those with issued capital of over £200,000 and below £3 million. All the data collected were from sources available to the public.

This restriction to publicly available information is both the strength and the weakness of the first part of the study, which seeks to identify the probable seat of control in each company. It is a strength because the data obtained are comparable between companies, but it is a weakness because the records used, the share registers filed at Bush House, are not designed to produce this kind of information. The main indicator used to identify the seat of control is the percentage of votes controlled by the largest twenty shareholders, with a subsidiary classification of these shareholders into four categories—persons, other companies, institutions and nominee companies. A further criterion is the percentage of total votes held by directors by virtue of their shareholdings. Companies are then graded into a spectrum according to the possibility that a group of large shareholders could exercise control. The grading can, of course, depend only on the possibility of owners' control, since there is no means of telling whether the bloc of large shareholders acts in concert or not.

Both nominees' and directors' shareholdings present obvious difficulties.

Professor Florence is undoubtedly right in claiming that nominee companies, especially those of the larger banks, hold shares in any one company for large numbers of different beneficial owners. But there remains the possibility that exceptionally large nominee holdings will contain one single holding of sufficient size to be of relevance to control, as well as a multitude of smaller holdings. The total of votes controlled by shares registered in the individual names of the directors likewise gives only a minimum estimate of their total voting power because of the possibility of untraceable shares held by members of the family or in family trusts, the votes of which are in the director's pocket.

These are difficulties inherent in the nature of the source material, and, although they make the allocation of many individual companies to any one category of control doubtful, they do not invalidate the exercise. They merely mean that only a minimum estimate can be given of the number of large companies in which a determined group of owners, if it were so minded, could exercise effective control. This makes the identification of one-third of the companies in the sample as probably owner-controlled or marginally so in 1951 all the more impressive. The declining trend in the proportion of votes controlled by the twenty largest shareholders between 1936 and 1951 is also of interest: over the sample as a whole the proportion dropped from 30% to 19%.

Professor Florence uses his analysis of ownership and control when he comes to consider the dividend policy of the companies in the sample. The main results, showing a close relationship between dividends and net assets and the residual nature of undistributed profits, have been published elsewhere, but this book gives an interesting correlation between the relative dividend levels in different industries and the average degree of owner-control. This comparison establishes that high dividends are associated with industries containing a high proportion of owner-controlled companies, and that low dividends are more likely where managers can be presumed to be in control.

The remainder of the book is concerned with the fortunes of a shareholder in the sample companies who bought his shares in 1936. There is nothing in this section which will be new to those who have read Professor Florence's articles in the journals, but it is convenient to have the scattered material brought together and related to the main study. As a result of this study and of recent work by other writers, a reliable corpus of information about the behaviour of equity prices in this country has been built up. It can now be taken that the last declared dividend is the most potent influence in determining share prices, and that income gain and capital gain are associated and not to be looked for in two different types of share.

Professor Florence gives us so many statistical measures that it may seem ungrateful to ask for yet one more. His concept of dividend gain as the total of dividends distributed over the period of the holding is obviously

relevant in measuring a shareholder's total gain from his investment, but not all shareholders who look to their shares for continuing income rather than capital gain on realisation are indifferent about the distribution of that income over time. We know that a person who bought Professor Florence's "basket" of shares in 1936 would not have had a complete hedge against inflation in capital value by 1951. (A rough computation suggests that he would have had to wait until 1960 before he could have broken even in real terms on realisation.) Could we not also know how the growth in his annual income would have measured up against the rise in the price level year by year?

J. R. S. REVELL

Department of Applied Economics, Cambridge.

Postwar Economic Trends. Edited by R. E. FREEMAN. (New York: Harper & Brothers, 1960. Pp. viii + 384. $6.)

IN this book the head of the Department of Economics at M.I.T. and eleven distinguished colleagues set out to review economic trends in the United States since the end of the Second World War. The discussion is generally handled as expertly as one would expect from a group of this calibre. There is relatively little new or original material in the collection: it was not apparently the intention of the authors to break new ground but rather to summarise and review work done by themselves or others elsewhere. The result is a book that contains few surprises for those who are already familiar with the subject matter, but which would be extremely useful to anyone seeking a first insight into those features of the post-war American economy that are treated here. Several of the chapters contain most valuable and voluminous references to other studies in the field.

The picture that emerges is of a country going in for suburbanisation and the welfare state (Rostow); a country with less income inequality than before the war (Solow). Industrial autocracy has given way to a constitutional system of labour-management relationships (Siegel and Myers). Product diversification has forced the large centralised corporations to decentralise (Chandler). Countries, such as the United States, in which big business is dominant are more likely to maintain social peace than the strongholds of small business (Adelman). Despite mistakes, the Federal Reserve System has, on the whole, exerted a stabilising influence (Freeman); but governments in the United States cannot claim much credit for stabilising the economy by fiscal policy (E. Cary Brown). The demand for funds for capital expenditure has been unusually large, and 75% has been financed from internal sources (Shapiro and Mendelson). Leontief notwithstanding, the United States is capital abundant and labour scarce; and capital's interest in higher exports is reflected in a shift in United States policy from protectionism to freer trade (Kindleberger). Finally, American economics

is now first rate, and Cambridge, Massachusetts, is second to none both in the quantity and in the quality of economic thought (Samuelson).

One of the oddest things about this 384-page book on post-war economic trends in the United States is that nowhere are we told what precisely made the United States economy tick in the post-war period. How were the stagnation and decline of the 1930s thrown off? What were the factors making for economic growth? What has happened to the underlying cyclical forces? Most surprising of all—not a single word is said anywhere about the rising trend in unemployment, the slowdown in the rate of growth and the increasing gap between output and capacity since 1953. Indeed, the only two references to the word " unemployment " in the Index relate to statements that the unemployment of the 1930s was dissipated during the war, and that 1945 predictions of mass unemployment after the war turned out to be wrong. Professor A. F. Burns has said that " every sustained spending wave that occurred between 1939 and 1954 was heavily influenced, if not dominated, by war finance or its sequelæ." The period since 1954 offers little evidence thus far that the private sector has been able to take over where the Government left off. Does recent experience mean that there is insufficient vitality in the private sector to overcome the drag of a government sector that is no longer expanding? None of these really critical questions are touched upon in the book. Nor is there any significant discussion of growing United States concern with the balance-of-payments position, although perhaps this is too recent a development to have been taken into account.

The nearest we get to a consideration of these matters is in Ralph E. Freeman's study of monetary policy and E. Cary Brown's analysis of fiscal policy. Neither is very reassuring. While Freeman feels that monetary policy has done more good than harm, he doubts whether monetary controls are very effective unless used drastically. E. Cary Brown is scathing about post-war fiscal policy and even more about fiscal policy-makers. While the data available to the Government have improved, " with the improvement in knowledge has come increasing ability to distort." There has been deliberate " official rewriting of economic history. The economic reports of the President . . . are, unfortunately, quite worthless as descriptions of the course of fiscal policy." At the same time " discretionary fiscal policies cannot claim much credit for stabilization operations over this period . . . we cannot take it as obviously true that a properly stabilizing fiscal policy will be undertaken." *A fortiori*, one suspects, it cannot be taken for granted that fiscal policies will necessarily help to promote a more rapid rate of growth. Whether the writer would change his mind now that several of his colleagues are in Washington is not clear, but the impression given is that the troubles are deep-seated and would not necessarily respond to limited changes in personnel: " There seems little that can be done," he says, " to suggest remedies for this situation."

Professor Samuelson gives a potted history of American economic thought. The early American economists were "optimistic," "theological," "protectionist" (or "nationalistic"), "pro-business, conservative" and "anti-theoretical"; above all, they were "amateurs writing in a provincial backwater." To-day American economics is "first-rate." True, the "professionalisation of economics may have had as one of its by-products a toning down of radical feelings," but it has "greatly improved its analytical quality . . . what was lost in originality was more than compensated for in cogency." Much of the credit for this is due to the awarding of Ph.D. degrees. "I was forced to the view that the absence of a comprehensive Ph.D. program may be the curse of economics abroad. . . . If the Ph.D. program had never existed, we should now have to invent it—for the simple reason that *it gives us the excuse to carry on advanced instruction in economics.*"

Many issues are raised by Samuelson's fascinating and controversial exposition, but it must suffice to take up two of them. First, one wonders whether "advanced instruction in economics" has been made necessary by developments in the subject matter, as Samuelson believes, or by limitations in the system of education. Bearing in mind such phenomena as the extraordinary popularity of the American paperback *Why Johnny Can't Read*, the need for spoon-fed Ph.D. courses in economics may simply reflect the failure of the previous ten years of the student's education to equip him for independent thinking and study, with the result that B.A. standards are too low. Is it not possible that in the "affluent society" education has become much too flabby and easy-going?

The need to spoon-feed men in their twenties may also have something to do with the "loss of originality" to which Samuelson refers. And here one must ask—is it true that added cogency has more than compensated for loss of originality? In fact, can *anything* more than compensate for loss of originality? Can an electronic computor replace the creativity of new ideas—there is nothing more cogent than an electronic computor. Or are we perhaps confronted in economics as in other fields with what Sir Charles Snow has called the "euphoria of gadgetry"? Above all, where is the humanity of the new American economics; and why must "the full-time study of economics . . . make for a reduction of Utopian ardor"? It would, perhaps, be more correct to say that while the ardour has disappeared, economics still deals in Utopias—such as the Utopia in which present-day feudal societies are a special case of perfect competition. It is primarily the character and purpose of the Utopia that have changed, with politics and the times.

S. Dell

Cambridge.

Trade with Communist Countries. By A. Nove and D. Donnelly. (London: Hutchinson for the Institute of Economic Affairs, 1960. Pp. 183. 30*s*.)

The nominal division of labour between the two authors of this book requires Mr. Nove to deal with the economics and Mr. Donnelly with the mechanics of trade with Communist countries. The two contributions, however, as if to demonstrate the excesses of unplanned Capitalism, are very imperfectly co-ordinated. Not only does the one make no reference to the other but the two give every evidence of independent gestation. This is a pity. For whereas Mr. Nove's essay—it is hardly more—would have made an admirable tract, its argument is diluted by inclusion in this larger volume; while at the same time Mr. Donnelly's contribution is so overshadowed by Mr. Nove's that he may fail to reach readers who want to know how to do business with Communist countries.

Not that Mr. Donnelly makes the matter very clear. He shows no anxiety to confine himself to mechanics and prefers, whenever possible, to range over the political background. A single page is devoted to contract terms and a few lines only to arbitration procedure. This is said to be regarded as fair by "business men with experience" of dealings with the U.S.S.R.; and it is maintained without substantiation that "it is usually possible to arrive at a compromise between London and Moscow with arbitration conducted in a neutral country." A great deal more space is devoted to such matters as the achievements of Stalin, the Hungarian uprising and the history of Comecon (already dismissed succinctly by Mr. Nove as having led "a shadowy and ineffective existence until 1956").

It is also very doubtful whether traders will be much enlightened by the long economic gazetteer of the 104 administrative regions in the U.S.S.R. or by the statistics of foreign trade in the years 1955–58 appended to the first half of the book: all the more as the text makes no attempt to analyse the present structure of trade or the trends that have been at work over the past decade. Mr. Nove does point out that whereas Soviet exports represent "only a shade over 2 per cent of the national income," the satellite countries are more dependent on foreign trade, Czech and East German foreign trade being five times greater on a *per capita* basis. But the reader is left without much clue as to the commodity composition of imports from outside the bloc, the share of the United Kingdom in those imports or the rate of expansion over the past few years.

Mr. Nove gives a useful insight into the logic underlying the attitude of Communist countries to foreign trade, and brings out the dilemma that such trade creates for other countries. He abstains from discussing trade with under-developed countries so as to be able to concentrate on trade with the industrial countries of the West. He takes the view that there is scope for more trade and that an expansion would be in the interest of East and West

alike. But he recognises that there are many practical difficulties, some deriving from the limited range of goods that the East could supply, some from the tendency towards autarky natural to planning organisations, and some from the bilateral system of trading practised by all Communist countries in their dealings with other countries (whether Communist or not). A relaxation of bilateralism requires action by the West as well as by the East. The West relies on bilateral arrangements to gain an entry for consumer goods into Eastern markets; but it is not apparent where the advantage lies in selling one set of exports rather than another, and there is no real danger that the East will fail to make use of all the foreign exchange that it earns. Might it not be better, therefore, to let Communist countries trade freely, subject to any restriction required by considerations of military security or by the need to prevent disruption of domestic markets?

It is not easy to judge whether the withdrawal of quota limitations by the West would have much immediate effect on the volume of trade, and Mr. Nove does not claim that it would. What he does not seem to emphasise sufficiently is that where trade is not governed by observable and calculable factors, such as relative cost, it is exposed to uncertainties that are almost bound to provoke administrative controls. Reluctant to throw open their markets to what may be casual invasions, and baffled by the difficulty of devising a common commercial code, governments may well decide that the choice lies between bilateral agreements and direct government trading. They may also ask themselves whether the Communist countries will get very far in relaxing bilateralism in trade with the West so long as they are unable to do so in trade with one another.

It is a curious commentary on this attempt to make Communist trading policies intelligible to Western readers that it should have been made the pretext for twice refusing the author a Soviet visa.

A. K. Cairncross
Glasgow.

Value and Plan: Economic calculation and organisation in Eastern Europe. Edited by G. Grossman. (Berkeley and Los Angeles: California University Press, 1960. Pp. vii + 370. 56*s*.)

This symposium contains thirteen papers presented at a conference held at Berkeley in the summer of 1958, together with comments by eminent discussants. It was designed to cover many aspects of planning and prices in the U.S.S.R. and some other European Communist countries. The contributors are very well qualified to write on these subjects, and the resulting book, with an admirable introduction by Gregory Grossman, sheds much light on the chosen subject-matter. Of course, the papers are by no means of equal value. Thus, it is doubtful if David Granick really succeeded in analysing the choices between labour-intensive and capital-intensive

technology in the early years of Soviet planning, and his discussion of "rationality" in such a context begs many questions. The reviewer at least found Reinhard Bendix's survey of the cultural and political setting of economic rationality rather unsatisfactory, stimulating though his paper undoubtedly is. Thus he defines economic rationality as concerned only with "work habits and . . . expectations regarding government action," and virtually ignores the *aims* of government action, the aims of the party. This causes him to neglect such a vital question as the possible contradiction between rationality in pursuit of economic goals and the logic of party rule; yet surely this should be at the very centre of his subject. Then, for some reason, Professor Bićanić said relatively little of importance about the Yugoslav system.

However, there are many good things. Peter Wiles has some typically thought-provoking things to say about various kinds of decentralisation and about various kinds of rationalities of planners' decisions—though at times he is (equally typically) just provoking, especially when he deals with individual Communist leaders (for example, "Krushchev is consciously a follower of Zhdanov in all fields . . .," p. 200). Michael Kaser provides an excellent survey of the *sovnarkhozy*, the regional economic councils set up in 1957, and, if he tends slightly to understate the difficulties generated by the reform, these are duly stressed in Grossman's comment and also in Wiles's paper. There is a very good paper by Zauberman on the Soviet discussions on the law of value and price formation, while Montias does the same for Polish price policy. The discussions on these subjects in both countries has progressed since 1958, but the authors are able to illuminate the subsequent developments by their analysis of the inherent nature of the problems involved. Robert Campbell demonstrates to great advantage his detailed knowledge of Soviet accounting procedures. There are several other good papers, but enough has been said to show that this volume is an important contribution to knowledge and its appearance reflects credit on all concerned.

A. Nove

London School of Economics.

Food, Land and Manpower in Western Europe. By P. Lamartine Yates. (London: Macmillan, 1960. Pp. xiii + 294. 35*s*.)

Since 1945 Western Europe's agriculture has, outside Iberia, increased its output so rapidly as to indicate a continuing agricultural revolution, both cost-reducing and output-increasing, more profound than any since the early decades of economic growth in Britain in the eighteenth century and in Sweden, Denmark and the Low Countries in the nineteenth century—and much more geographically widespread. These recent developments are not simply, or even principally, the result of governmental willingness to pay

higher relative prices for farm products in recent years as compared with the period between the wars. The movement of the aggregate farm product supply schedule to the right as a result of scientific advances and managerial and structural reorganisations, rather than any elasticity the schedule may possess, has been and remains the principal consideration on the side of supply. This shift of the supply curve could be checked appreciably only if farmers' finances were depleted by a reduction in prices so severe as to be, in the principal continental countries at least, politically out of the question. In the years immediately ahead the movement of labour out of agriculture will, within existing programmes, probably be insufficient to maintain the relative *per caput* income position of farm populations. In the resultant attempts to offset the effects of supply growing more rapidly than demand, Western Europe will move more and more either towards the current situation in the United States—of agricultural surpluses or surplus capacity—or, following a European tradition of long standing, will " export " its agricultural surplus problem by restricting food imports.

Mr. Lamartine Yates's book is in large measure a survey of the agricultural achievements since 1945 of the countries west of the Iron Curtain, excluding Yugoslavia and Turkey, as measured by changes in levels of food consumption and production, usually with the years immediately before the First World War as a base period, and by improvements in attained standards of nutrition in the last two decades. This account is particularly valuable because it is set firmly within a forward-looking framework such as that outlined above, the unifying elements in the book being estimates of expected rates of growth in demand and supply for food between 1955 and 1970 and the consequent implication, on various specified assumptions concerning net migration from the land, on *per caput* productivity and incomes in agriculture.

Unfortunately, Mr. Yates has not been alone in this type of analysis, and his calculations are likely soon to be replaced by more detailed estimates. Indeed, recent F.A.O. studies for a shorter period up to 1964–66 (*Monthly Bulletin of Agricultural Economics and Statistics*, F.A.O., October and November 1960) contain more product-by-product details on possible market developments and use statistical methods at least as acceptable as those found in Mr. Yates's book. However, the F.A.O. studies support Mr. Yates's general picture. In each case aggregate supply is expected to increase, barring additional measures to check it, at 2–3% per annum: F.A.O. sets limits for the annual farm-gate increase in demand of 1·5 and 1·7%, while Mr. Yates calculates a rate of 1·6%.

Economists with some knowledge of the history and present characteristics of the European agricultural economy will at times wish for a more rigorous examination of important details. For example, it should have been possible to give some idea of how great is the economic return from consolidation of fragmented holdings. Again, one wonders from Mr. Yates's discussion of past trends of agricultural production whether he has considered

the other evidence (set out or mentioned in Ingvar Svennilson's *Growth and Stagnation in the European Economy* and in Colin Clark's 1954 article in the *Journal of the Royal Statistical Society*) which strongly supports his rather tentative conclusions.

But other readers, whether economists less well acquainted with the subject or public administrators and politicians in the Atlantic Community, for whom the book may be primarily intended, will probably welcome some sacrifice of analytical detail in exchange for the many statistical summaries and illuminating pieces of general description. For them, at least, Mr. Yates has provided an extremely readable book which, more than any other single study, sets out clearly the great opportunities in Western European agriculture for simultaneously economising in resources and for expanding total output.

Mr. Yates's principal recommendation concerns measures to speed the movement of surplus labour from agriculture. His proposal for greater geographical decentralisation of manufacturing industry towards areas of surplus agricultural population need not necessarily be a costly concession made because governments are unwilling to use pressure on farm incomes as a principal means of speeding migration from the land. The geographical sizes and population densities of many of the large, industrial conurbations of Western Europe probably account for heavy social costs (in the strict economic sense). Accordingly, the subsidised development of new industrial regions to assist Mr. Yates's objective might not be economically expensive, especially as in addition an important indirect benefit of speedier migration from the land will be a more rapid increase in agricultural efficiency due, for example, to more rapid consolidation and enlarging of fragmented holdings. However, Mr. Yates has not set out his case in sufficient detail, a criticism which must be raised against most of his discussion of future policy.

For example, what is to happen before his programme for accelerated migration from the land comes into operation? How is Western Europe to react to the probable food surpluses of the interim? Has the British Government recently set the pattern with its proposal to put quotas on individual milk producers? Should not Western Europe be thinking of its equivalent of Public Law 480, the United States' legislation covering the low-price sale of surplus foods and fibres to underdeveloped countries, or better still, should not the Atlantic Community be working out an integrated surplus-disposal programme? Is it better, in a world which is still largely malnourished, even if not hungry, for Western Europe's agriculture to have surplus capacity or surplus supplies (of proteins rather than calories) if, as the reviewer thinks, these are probably the only politically realistic alternatives?

In general terms, Mr. Lamartine Yates has seen clearly and accurately the crucial problems and main possibilities confronting the agriculture of Western Europe, but the politician, whose caution and conservatism he criticises, may fairly contend that he should have tried to spell out more

specifically the policies now needed to end restrictionism within Western European farms.

G. R. ALLEN

Agricultural Economics Research Institute, Oxford.

Indian Economic Policy and Development. By P. T. BAUER. (London: Allen & Unwin, 1961. Pp. 152. 16s.)

ONE would like to dismiss this book as the obvious outpouring of a political adolescent with an economic *idée fixe*. But it is meant for laymen who do not know India. They might be misled by the arguments of a professor whose chair has special reference to economic development and underdeveloped countries. Even the title of the book is misleading. There is virtually no description of what has in fact been achieved in Indian development: and the account of Indian policy is limited to an array of the features most open to attack from an extreme *laisser-faire* position.

Professor Bauer's recipe for India is little more than Gladstonian. Within the confines of low taxation and rigorous finance, roads, education, basic health services and agricultural extension should have the highest priority. Whether irrigation is permitted, I do not know—there is no mention of it. Nor does Professor Bauer commit himself on the subject of birth control, but his general views on subsidisation lead one to suppose that any promotion of it would be limited to education. Professor Bauer laments the "expropriation" of the Zemindars, but the very substantial compensation is not mentioned; anyway, there should be no land reform, except, perhaps, for some consolidation of holdings; co-operative credit is socialism, and money-lenders are seen as competitive purveyors of scarce capital. In brief, the recipe would not be very different from a reversion to pre-war policies, though she might be allowed £75 million per annum of aid, which would be reduced if she went in for economic controls or public industry, but could be increased if she stuck to education and roads.

Professor Bauer describes present policies as throttling Indian development at every turn. But he does not attempt to justify his arguments with figures, so he does not mention that India, since independence, has probably grown three times as fast as she did under those pre-war policies which appear similar to his (though one wonders whether he would have approved the large-scale public irrigation of the Punjab). Indeed, so far as I could trace, the only quantitative fact about Indian growth which he adduces is the 2% per annum population growth rate. This is mentioned not as the cornerstone of an analysis of Indian problems, but merely to castigate the Second Plan estimates, and the "misleading and pretentious nature" of Indian statistics.

It is hard to say whether Professor Bauer believes that the Indian economy

might grow, under a Gladstonian regime, at the rate of about 5% per annum which is now probably required to prevent political catastrophe. Certainly the United Kingdom never grew so fast, even without the handicaps of the Hindu religion and modern labour laws, to both of which Professor Bauer draws attention.

But the book leaves no room for doubt that the primary reason for his advocacy is fear of socialism. And where a threat of socialism is to be discovered, he shows remarkable ignorance of the Indian political scene. Take one example:

> "A mimeographed draft outline of the Third Five Year Plan, which emanates from the Planning Commission, already includes profits from the trade in foodgrains at about Rs. 900 crores to be used to help finance that Plan. This implies that the official monopoly of the trade in foodgrains would be used as a major instrument of taxation, in much the same way as the Soviet Union" (p. 95).

This document is referred to again at length (pp. 126–7) as "the mimeographed draft outline of the Third Plan, which, although as yet unpublished, is obtainable in India," and used to introduce the statement "it is not impossible that they might be prepared to run the risk of starvation in the country rather than moderate the cherished Plans." I can identify the document. It is not a draft outline of the Third Plan. Its full contents were published in the journal *Capital* (Calcutta, January 15, 1959, p. 51). It was written as a working paper, partly for Professor Swan and myself, in November 1958 by an official of the Planning Commission, and represented his first personal ideas of the possible shape of the Plan which lay two and a half years ahead. I doubt if any other senior official even saw it before it was published. Certainly none agreed with it. Only in the above sense did it emanate from the Planning Commission. The actual draft outline of the Third Plan was published in June 1960. It bears no close resemblance to the document referred to, and could scarcely be more different so far as financing is concerned. There is no proposal for an official monopoly of the foodgrain trade, nor any proposal for raising money by taxing foodgrains. Professor Bauer does not mention this even in a footnote.

Professor Bauer's polemic has a point. The aim of the book, and of the American pamphlet on which it is based, is to get aid to India cut. The method is to try to convince the audience that aid makes totalitarianism more likely. There is no difficulty in showing that the Congress Party's long-run intention is "socialism" (of a kind which could fairly be described as Gaitskellian, though Professor Bauer would not, of course, apply such a cosy adjective). But more was needed to be convincing. So Professor Bauer presents economic controls as tending inevitably to totalitarianism, and makes the grossly unrealistic suggestion that the establishment of a socialist society is an aim which overrides economic development in the eyes of the Indian government. One can imagine Professor Bauer, in the post-

war era, campaigning in the United States against the United Kingdom Loan and Marshall Aid because the British Labour Party was establishing a socialist society and because economic controls, more rigorous in Europe then than in India now, were paving the way to totalitarianism. But perhaps the most striking illustration of Professor Bauer's political miasma is that the first mention of the Communist Party in India is two pages from the end. I suppose that if you can convince yourself that economic controls are almost Communism, you can forget the threat of actual Communism.

Economic arguments are, it seems to me, used in a one-sided manner as persuasive devices. Let me take four examples. First, he says that a bad harvest and a rise in import prices cannot cause a substantial deterioration in the balance of payments, on the insufficient grounds that they also reduce incomes: while on the export side he argues that over-valuation of the rupee discourages exports, implicitly discounting the possibility of inelasticity of demand with the remarkable statement that "the volume of Indian exports bears no relation to the total world demand for the products" (p. 64). No wonder he can imply that there never need be any connection between development and balance-of-payments difficulties.

Secondly, he argues frequently that taxes on consumption, and controls over the imports or production of consumer goods, inhibit the growth of agricultural production by reducing incentives to the peasants to produce for sale. Indeed, although there is no evidence, he does not present this as an argument but as a certainty. My own guess is that the Indian peasant is likely to try to produce more for sale if the price of cloth, salt, or kerosene rises. It would be different if goods were actually unavailable as a result of controls. But this is not the case, except for a few imported goods which the peasant never dreams of. Professor Bauer's only example of shortage is film. Has he asked himself how many villagers own cameras?

Thirdly, he frequently states that taxation and controls are inhibiting private investment, and hence growth (though elsewhere he argues that growth is largely independent of investment). He does not say that public investment has provided a stimulus to private investment far outweighing any disincentives arising from taxation and controls, nor that private investment and output have been rising as never before.

Fourthly, he argues correctly that prices do not reflect scarcities, in particular that imports and capital are too cheap (the latter presumably only to industry, since money-lenders' rates range from about 12% per annum to almost any figure one cares to name). But at the same time he can argue that public provision of rural credit is likely to withdraw resources from more productive uses; and he attacks labour-intensive cottage industry, saying that "the higher costs of cottage industry imply that capital and labour used there is less productive than elsewhere" (p. 83), a glaring *non-sequitur*: and he attacks heavy industry for being capital intensive, and attacks any industralisation because it is a "great over-simplification"

to suppose that labour in India is surplus. In short, he knows the price-mechanism in India is cock-eyed, but attacks any attempt to allow for it, and even some failures to allow for it.

In brief, the author uses economic and other arguments with insufficient respect for truth or logic, either for the sake of supporting a particular political case or because economic dogma makes it impossible for him to examine an economic case on its merits. Of course, there is often an element of truth in what he says. Indian planning is certainly imperfect, and a general attack on almost all aspects of the current Indian effort to promote growth is sure to contain some opinions with the slant of which any reviewer would agree. But, even in such cases, the criticism is presented so dogmatically and so sweepingly as to be destructive of any attempt to reach a well-balanced opinion.

I. M. D. Little

Nuffield College.
Oxford.

An African Economy. A study of the economic development of the Nyanza Province of Kenya, 1903–1953. By H. Fearn. (London: Oxford University Press for the East African Institute of Social Research, 1961. Pp. xviii + 284. 35*s*.)

This book is a study of the economic development of the Nyanza Province of Kenya in the fifty years from 1903 to 1953. The author, who is now on the staff of the University College of Ghana, was formerly Senior Research Fellow at the East African Institute of Social Research, on behalf of whom the book is published. As a pioneer regional economic history the volume is to be commended. It has been prepared with care and thoroughness. It may be regretted, perhaps, that the narrative does not come closer to the year of publication. Prior to 1903, Nyanza Province formed part of the Uganda Protectorate. Its transference to the East African Protectorate (later Kenya Colony) was an administrative convenience consequent upon the development of railway communications to Kisumu on Lake Victoria and the removal of the Protectorate's headquarters from Mombasa to Nairobi. The first date is therefore understandable. The second date coincides with the appointment of the East Africa Royal Commission, though not with the publication of its Report. Dr. Fearn makes some use of this Report, but the last seven years have been important for Kenya both politically and economically, and we are given no indication of what they have meant for Nyanza Province. This is the more to be regretted since the Nyanza economy is rightly described as the most advanced of the tribal economies of Kenya.

The economic development of the Province falls naturally into two stages. In the first, which extends to 1930, there was little progress. The attempts by the Government in 1908 to introduce cotton as a cash crop met with little

success, though in Uganda the cultivation of cotton increased rapidly. The usual explanation is that in Nyanza cotton was disliked as a crop. But there is no reason to suppose that the Ganda cultivator disliked cotton less. Nor was the fall in the price a major deterrent, for that, too, operated in Uganda. Dr. Fearn attributes the failure in Nyanza to the location of the cotton area, the method and manner of cotton's introduction, the lack of a vigorous cotton policy and the slower response to the opportunities afforded by the possession of money. The introduction of registered freeholds in Buganda also contributed to the success of cotton growing in that area.

The second period saw a significant change. After 1930, and despite world depression, the Nyanza economy expanded considerably, mainly " by an extension of the marketing opportunities for the sale of surplus foodstuffs grown by Africans in the Province." European and Asian enterprise in gold-mining, tea-growing and sugar made their contributions, though gold-mining had a relatively short life. But the expansion of maize production made Nyanza the granary of East Africa. In the early thirties the Government did little to improve the facilities for the marketing of African produce; the main aim was to obviate famine after the experience of the locust invasions of 1930–32. In 1935 the Government adopted a more positive policy of encouragement, and war conditions gave the new policy an additional fillip.

The problems of marketing and price policy which emerged are well known, and even to-day they are matters of controversy. Dr. Fearn's discussion of them may not add much that is new, but it provides a very adequate account of the issues involved. To encourage an increased production of maize required the offer of a higher price. European farmers might be expected to react positively to this higher price, but African producers might be content to produce a lesser quantity, provided, at the higher price, they could meet their limited cost requirements. With consumer goods in short supply and the habit of saving, in the European sense, still undeveloped, there seemed to be a real danger that a higher maize price would fail in its purpose. Differential prices for European and African maize were inexpedient politically, and so there was evolved the policy of paying an identical price but levying a cess on African maize, the proceeds being paid into a District Agricultural Betterment Fund to be used for the improvement of African agriculture. Thus, although there was the appearance of an identical price, the realised price was different for European and African producers, and the latter were subject to a form of compulsory saving.

Space does not permit any detailed commentary on these policies nor on the policies which succeeded them. A good deal was supposed to depend upon the African's lack of response to the price mechanism. This view can easily be over-stressed, and war-time experience may not be a good guide to peace-time reactions. Dr. Fearn himself points out that " the upward trend in prices had encouraged a development in African dhow-fishing," and many other examples could be given. In an earlier chapter reference is made to

the traditional attitude to money. Unlike cattle and wives, which were productive assets, money seemed to have no capital value; hence the apparent lack of response in the earlier period to the developing marketing facilities in the Province. To what extent is this attitude breaking down in the light of experience? The answer to this question is relevant to marketing and price policies and to the prospects for economic development in the future.

Other traditional attitudes are no less relevant. Agriculturalists not merely in Nyanza but in many African territories deplore the system of maize monoculture, but there is a deep-seated preference to grow what can be eaten, such as maize, rather than what can only be sold, such as cotton or tea or coffee. And there is the problem of land tenure. Here Dr. Fearn observes that a change is in progress. Land-elders and co-operative family groups are breaking down under the influence of new economic and political arrangements. But these and similar movements throw up many tensions. The new conflicts with the old. The richer areas are reluctant to contribute for the benefit of the poorer areas.

Dr. Fearn has made a most valuable contribution to African economic history. Some readers more concerned with policy-making than with history would have welcomed a further chapter in which the author attempted an assessment of future trends. This is something which Dr. Fearn might still be encouraged to do.

D. T. Jack

University of Durham,
Newcastle-upon-Tyne.

Finance and Development in West Africa. The Sierra Leone Experience. By N. A. Cox-George. (London: Dobson, 1961. Pp. 333. 50*s*.)

Mr. Cox-George tells us that he intends to "focus attention on the cyclical problems of financing economic development" in Sierra Leone. He has a subsidiary purpose in mind as well, to present an economic history of the Colony from the early days of its foundation in 1787 until fairly recent times. The intentions are commendable. We know too little of the way in which West African countries have made their way to the front. Moreover, Sierra Leone has quite possibly been experiencing the same kind of difficulty very recently that other primary producing nations have run into in trying to reconcile their plans for capital expenditure with their latest experiences of periodic fluctuation in the prices of their major export crops. A treatment of these questions by a person closely acquainted with Sierra Leone might be expected to prove a rewarding study, if properly carried out.

Unfortunately, one of the temptations in writing about West African economies—where reliable data are none too plentiful—is to become pro-

gressively more uncritical of the kind of information that is to be accepted as meaningful. Regrettably, the author has all too often yielded to this temptation, and the result is that we do not see the economy of Sierra Leone in clear focus.

The book is divided into three parts of unequal length. The first and longest deals *seriatim* with aspects of Sierra Leone's public finance, currency, trade and agriculture in the nineteenth century. It is an odd mixture. The discussion of tax legislation, though at times tedious and trivial, is not without some appeal to the colonial antiquary. The statistical material is very uneven in quality and reliability; figures for the foreign trade of the Colony support a coherent account, whereas the repetition of admittedly erroneous "statistics" on the agricultural produce and wage-rates spanning the last century is scarcely defensible. Mr. Cox-George has, however, brought together a considerable amount of evidence on the way in which Sierra Leone was administered from the time of its foundation.

Part II of his study is entitled "Public Finance and the Economy in 'Prosperity,' The Experience of Two World Wars." The choice of 1914–18 and 1939–45 to typify the expansionary phase of the trade cycle is most disconcerting. Apart from the usual objection that wars disrupt markets and the unusual strategic importance of Freetown during those years, there is, one would think, a far better illustration of "prosperity" in the experience of the early 1950s. Yet the writer claims that an analysis of Sierra Leone's wartime excitation "affords a valuable object lesson for a developing economy" (p. 17).

The third part of the book contains a description of Sierra Leone in the depressed years of 1929–35. The treatment is built around the Trade Returns and the Public Accounts. There are detailed references to the effect that Imperial Preference may have had on trade and to the institution of Colonial Development and Welfare grants.

One final point; Mr. Cox-George laments the absence of estimates of Sierra Leone's national income. Rather than rely on the fallible substitutes he has reproduced in this book, he would render his country a greater service by trying to fill that statistical vacuum himself.

I. G. Stewart
University of Edinburgh.

The Persecution of Huguenots and French Economic Development, 1680–1720. By W. C. Scoville. (Berkeley and Los Angeles: California University Press (London: Cambridge University Press), 1960. Pp. x + 497. 52*s*.)

Mr. Scoville's theme is an old one, and he gives it a new treatment. Nineteenth-century writers such as Charles Weiss represented the liberal revolution in thought that equated the religious persecutions of the old régime with its apparent economic failure. Samuel Smiles took up the

theme from the English side, using it to illustrate the merits of a race that seemed to personify the virtues of self-help and enterprise. Like most romantic themes of economic history, it became encrusted with exaggerations and inaccuracies. Mr. Scoville's study strips the subject down to more modest proportions. Smiles, for example, put the number of Huguenot immigrants to England at 100,000. Mr. Scoville divides this number by two. More important, by going back to original sources, he shows that the effect of Huguenot emigration on the development of French trade and industry has been overestimated. Some industries, like silk, had begun to decline before the Revocation of the Edict of Nantes, and their continued depression was due to other economic factors such as the competition of cottons and the decline of overseas markets. The woollen manufacture survived much better than the older historians believed. Felt hat-making and paper manufacture suffered, like silk, from general economic difficulties created by war and tariff policy. Sugar refining actually increased. In so far as trade and shipping decreased they were the victims of war rather than of persecution of a Protestant minority, only 10% of which was actually driven out of France. This task of fact finding and deflating, Mr. Scoville has done with care and skill. It is the strongest and, one must add in fairness, the largest part of his study.

By contrast, the main weakness lies in the matrix of general ideas in which his detailed inquiries are set. It is to Mr. Scoville's credit that he is appalled by the very thought of the persecutions. "Persecution of an easily identifiable minority by the dominant majority has always seemed to me one of the most senseless and despicable forms of human cruelty." This seems to have been his motive in choosing his subject for inquiry. "If historians and sociologists could demonstrate that such persecution usually has recoiled as a boomerang upon the persecutors, it might help to improve human and social relationships." Here a certain naïveté, not to say heresy, creeps in. Let us continue from the publisher's note, which the author presumably approved. "He had predicated that bigotry, in this instance at least, had been deplorable for both moral and economic reasons. But [note the "but"] during ten years at work on the book he uncovered more and more evidence to the contrary . . ." and so follows a résumé of evidence minimising the effects of the persecution.

Here are two linked fallacies. The first is that specific moral error necessarily carries with it specific material penalties. The second that it is possible to isolate as "a primary reason for France's failure to keep pace with England in industrial development" one specific aspect of French social policy. Not surprisingly, Mr. Scoville runs at an early stage into doubts about his thesis. "Whether the Revocation actually had such effects as these upon the French economy is a difficult question to resolve. Historical causation always involves many interdependent variables and cause and effect are often interrelated." And so on. Yet equally (and equally

unsurprisingly) we end with a denunciation of an act which " still stands condemned as a crime against men, for it violates individual freedom and human dignity. How can one estimate the harm . . .? How can one quantify the loss . . .? "

How indeed! Yet Mr. Scoville could have saved himself much work and private argument, and his readers the risk of confusion, if he had begun with a wider survey of French dynasticism instead of a Victorian moral Aunt Sally. Even the briefest glance at France's long-term evolution in the eighteenth century would have shown that it grew and grew remarkably. Moreover, that it grew in spite of the obstacles placed in the path of economic progress by the facts of policy and social structure. Amongst such obstacles and errors, religious persecution was undoubtedly one; but only one. Mr. Scoville might even have concluded at an earlier stage than his conclusion that the attempt to isolate and quantify the effect of Huguenot emigration was doomed from the start. But had he looked more closely at the economic and social evolution of Britain, Holland and Prussia he would have been immensely strengthened in his conviction that the Revocation lost to France the talents and industry of a very remarkable race of men. However much one may detest the word, there are times when the merits of methodology force themselves on the historian.

CHARLES WILSON
Jesus College,
Cambridge.

Political Theory: Philosophy, Ideology, Science. By A. HACKER. (New York and London: The Macmillan Company, 1961. Pp. xiv + 609. 49*s*.)

THIS is an admirable book of its kind: and its kind is large-scale exposition and interpretation of the ideas of the great political theorists from Plato and Aristotle to Marx and Mill. This task has been performed so often before, especially by conscientious and industrious Americans, that the most relevant question is whether the book is needed at all. It has a special claim to exist: that it is in revolt against the hegemony of historians over philosophers in the conventional way of handling political theorists and their ideas. Professor Hacker holds that ideas matter very much more than the history of ideas, and that the " great books " should be studied for what they can contribute to a better understanding of life, not merely for what they allegedly contributed to the history of ideas in the past. His approach is precisely the opposite of that adopted by J. A. Spender in his study of *The Government of Mankind* (1938), though he makes just enough concession to the relevance of historical circumstance to preface each chapter with a brief section on " the man and his times." The men chosen are the almost inevitable list: St. Augustine and St. Thomas being interestingly considered together, and de Tocqueville being included between Hegel and Marx, although Nietzsche is omitted and John Stuart Mill ends the sequence.

As an expositor and interpreter the author reveals high qualities. He is accurate, balanced, lucid and reflective, and has a good sense (that comes only from experience of teaching students of politics) of what stages of an argument most need clarification and emphasis. He constantly retains (or regains) interest by illuminating asides and provocative cross-references to cognate problems of modern politics and sociology. This is in accord with his central purpose, which is to bring together two modes of studying political theory which have tended to be divorced: the historical study of ideas as contributions to an intellectual tradition, and the systematic study of political behaviour in the modern world. The significance of Rousseau or Bentham, he holds, is that their writings are a discussion of political reality which has lasting relevance, and the insights they offer need to be related to the generalisations we can shape by observation of modern government and society. He pleads for a remarriage of political philosophy and political science: and insists that there is nothing incongruous in illustrating Aristotle's ideas from the Kinsey Report, or calling in " Parkinson's Law " to a discussion of Burke.

Professor Hacker's approach is sustained with enough vigour, consistency and sense to give his book lively interest, even for those already familiar with the texts he discusses and with such extended surveys of political theory. His wit and his own acute historical sense mask the perils and shortcomings of the standpoint he is defending. Of course, much nonsense is written about the alleged " influence " of one writer on another, or even on events, and no great writer can be brushed off as " representative " of the thought of his time. The absurdities of the biographical approach (Marx's carbuncles explain the irritability of *Das Kapital*) or of " lost laundry lists " (every scrap written by the great man deserves to be printed and read) are patent enough. But the remedy for sloppy historicism is not to be unhistorical. A reader who imagined that the " state " discussed by Aristotle was the same as that discussed by Hegel, or that the sort of " political party " damned by Rousseau but defended by Burke was the same thing, would make little sense of political philosophy. Professor Hacker never stumbles into such pitfalls; but may he not be propelling some of his pupils and readers towards them?

DAVID THOMSON

Sidney Sussex College,
Cambridge.

Max Weber. An Intellectual Portrait. By R. BENDIX. (London: Heinemann, 1960. Pp. xi + 480. 30*s*.)

The City. By M. WEBER. (London: Heinemann, 1960. Pp. 242. 21*s*.)

IT is just over forty years since Weber died, and only now do we have the first full-length study of his work to be written in English. Although Weber

must rank second only to Marx among the giants of sociology, it has taken a longish time for his work to receive the attention it deserves, particularly in England. Large sections of his writings remain untranslated, including much of the monumental and posthumously published *Wirtschaft und Gesellschaft* and three of the most important papers on method; the secondary literature, though growing, still leaves many aspects of his work insufficiently explored; and his famous thesis on capitalism, about which controversy still rumbles on, was ruthlessly misunderstood by almost all of his earliest and fiercest critics. Bendix's study of him, though it deals only with his substantive writings, fulfils a serious and long-standing need.

Bendix's exposition is organised in accordance with Weber's own systematic framework as developed in *Wirtschaft und Gesellschaft*. He first summarises Weber's little-known early work on the East German agrarian problem and the stock exchange. He then gives an account of Weber's often misrepresented ideas on the relation of Protestant doctrine to the development of European capitalism and discusses Weber's comparative sociology of Hinduism, Confucianism and ancient Judiasm. In the third and final section, Bendix deals with Weber's now well-known typology of authority-structures, and covers separately charismatic, traditional and legal *Herrschaft*. In all this, Professor Bendix is deliberately unpolemical. He mentions but does not enlarge upon Weber's persistent awareness of Marx, and he does not attempt to adjudicate between them. Similarly, he gives a lucid summary of Weber's famous distinction between classes and status-groups, but seems to feel it unnecessary to stress the importance of the distinction. It is a little difficult not to regret that in the course of his knowledgeable exposition of Weber's views Bendix does not take the occasion to remind us more forcibly of their merits; but this is not his declared purpose.

If we are prepared to be more dogmatic than Professor Bendix allows himself to be, we may assert that Weber made four crucially important contributions to the study of society: first, his inquiry into the independent causal role of ideas in social and economic change; second, his analysis of the dimensions of social stratification; third, his discussion of the social bases of political authority; and fourth, his treatment of the logical status of historical and sociological method. It is often said of Weber that he fails to apply his own precepts about method in his historical studies, and it is perhaps this view which enables Bendix and others among Weber's commentators to discuss the historical studies more or less in isolation. But it is a view which needs some qualification. It is true that the elaborate classification of ideal types which occupies much of *Wirtschaft und Gesellschaft* finds little echo in his substantive work: the interminable distinctions between *wirtschaftender Verband* and *Wirtschaftsverband*, *Nahrungsspielraum* and *Erwerbsspielraum*, *Verwaltungsordnung* and *Regulierungsordnung* are for the most part quite unnecessary to the solution of the concrete problems which Weber elsewhere deals with. But his views on the logic of explanation are crucial to the whole of

his work and (despite a full-length treatment by von Schelting which appeared in 1934, and numerous shorter discussions) they have received too little of the sort of attention they deserve. Too often Weber has been accused of things he does not say (from extreme positivism all the way to nihilism) or criticised for not going as far in one or other direction as his commentators. It is bound, therefore, to be something of a pity that Bendix chooses not to deal with the methodological writings, although it does not affect the validity of his interpretation of the substantive studies.

For the economist, however, Weber's methodological discussions are far less relevant than they are to some other sorts of social scientist. The logical substratum of the methods used by economists is straightforward enough, and no economist is likely to be logically ignorant of what he is doing in constructing a price theory or a growth model in the way that a psychologist may be who hypothesises about "the unconscious" or, indeed, a historian who begins paragraphs with "Feudalism . . ." But it can be strongly argued that sociologists (who ought to have properly digested Weber if anyone has) have wasted a good deal of their own and other people's time by neglecting Weber's methodological precepts. The endless debates between positivists and relativists, individualists and holists, have taken Weber surprisingly little into account; and Weber's way of discussing, to take one concrete example, social stratification makes it possible to distinguish questions of language from questions of fact without necessarily committing us to his own substantive theories. Weber, in fact, was very much better aware than many of his successors and interpreters of such logical pitfalls as illegitimate reification and misplaced functional analogy. If some of these successors are partly responsible for the justified attacks levelled against sociological theory, Weber should be no more held responsible than Marx should be for the excesses of "vulgar Marxism." Not that Weber is ever likely to command the influence of Marx; but perhaps this is precisely because his analysis was more subtle, his evidence more diverse and his conclusions more cautiously qualified. If he is now about to enjoy a vogue, it is not before time.

In any case, to ask for a polemic in favour of Weber's writings on method is to ask for something other than what Professor Bendix wished to write. His thorough and careful study is likely to remain the standard exposition of Weber's substantive writings, and no one will question either his contention of the need for it or his competence to carry it out. If the style is seldom sprightly, neither is Weber's; and though there are one or two small irritations (*e.g.*, the French Revolution did not eliminate the monarchy in 1789 (p. 349) and "mundane orientation" (p. 207) is pure jargon for "worldliness"), there are not many. Students of Weber at any level will for a long time remain in Professor Bendix's debt.

Heinemann's have at the same time made available the Free Press edition of *The City*, the first English translation of the penultimate section of

Wirtschaft und Gesellschaft (pp. 735–822 of the 1956 Tübingen edition). The editorial preface is for the most part numbingly pedestrian, but it is good to have another dribble of *Wirtschaft und Gesellschaft* available in English. Perhaps one of these decades we may even have it all.

W. G. RUNCIMAN
Trinity College,
Cambridge.

The Skills of Interviewing. By E. SIDNEY and M. BROWN. (London: Tavistock, 1961. Pp. xii + 396. 35*s*.)

To the psychometric purist the interview is not a very respectable device. Its outcome is difficult to express reliably in terms which can be handled quantitatively: and when its validity as a means of assessing or predicting performance has been scientifically tested it has seldom shown up well. Mrs. Sidney and Mrs. Brown admit the interview's limitations and provide a brief résumé of the published work in which they are documented. The authors justify their book by pointing out that, whatever its demerits may be, the interview will in practice be used to reach all manner of judgments and decisions, and that therefore people had better learn how to make the best of it.

The skills which are discussed relate to interviews with adults rather than with children or with early adolescents, to interviews between people at work rather than between people at leisure or between individuals and professional consultants. This is to be expected from writers who are themselves preoccupied with management teaching and management studies.

At an early stage the book develops into something approaching a training manual. There is a wealth of useful practical advice on the way to plan an interview and on the attitudes which may mar its successful conduct. The advice is illustrated by a series of full and lively case studies. All of them fall into two categories—the selection interview and the "management" interview. The latter comprise interviews designed to investigate behaviour at work, to impart information and advice, to hear grievances or to guide and admonish an employee. They are the interviews on which much of the communication between different levels of an industrial community depends.

The tone of the writing is neither speculative nor profound. The authors do not involve themselves in a detailed critique of first principles. There is no subtle differentiation of the types of interview for which skills might be needed. They hasten with relish to describe the things they know well from first-hand experience. Here they write with authority in a crisp and readable style.

The interview is recognised not only as a means of assessment or communication, but also as a force in the dynamics of developing those interpersonal relationships which bear on industrial morale and which can play

an important part in skilful management. Mrs. Sidney and Mrs. Brown sympathise with the ideas of Elton Mayo on what can be achieved in industry by an interviewer possessed of insight.

There are a number of points which might have received attention, but which are not treated at all. For example, interviewing is a demanding task which requires sustained alertness and unflagging perceptions. How much interviewing can a man carry out in a day without falling from his highest standards? Do people vary much in their capacity to withstand staleness? Is anything known about the means of keeping an interviewer fresh?

Again, what is the effect, if any, of age discrepancies between interviewer and interviewee? What about the elderly interviewer? It has been shown experimentally that the elderly person finds difficulty in adapting himself to a tempo set by someone else. Listening, a very important aspect of interviewing, means adjusting oneself to the speaker's pace. Is the elderly interviewer bothered by this factor? Does he talk too much himself in order to protect himself against an overdose of listening? Does he attempt to curtail the effusions of a garrulous interviewee? If both parties are elderly, does it help or hinder the exchanges on which the interview depends?

The book is not an inspired or original work, but it is well informed and eminently sensible. Interviewers, whether practised or still novices, will read it with profit: and it will give some valuable hints to anyone who expects to be sitting in the interviewee's chair.

J. G. W. Davies

Cambridge.

NOTES AND MEMORANDA

KEYNES' AGGREGATE SUPPLY FUNCTION

A Comment

Alleging, in an article in the Economic Journal of September 1960, that the "economic content" of Keynes' aggregate supply function is to be discerned in an analysis of the properties of its inverse, the employment function, Professor Wells proceeds to relabel (n. 3, pp. 536–7) the "employment function," as the "aggregate supply function." In identifying an examination of the properties of the aggregate supply function with those of its inverse, the employment function, however, Professor Wells implies, in effect, that *a function and its inverse have exactly the same properties, which is true only under certain restricted conditions.* In doing so, he has declared the results of the explorations of a number of economists, who had endeavoured to clarify Keynes' aggregate supply function, "unsatisfactory."

Owing to the very theoretical setting of the discussion, as started by Professor de Jong, it is now clear that the solutions that he propounded, in terms of a simple model of perfect competition, removed all the methodological confusions concerning the shape of the aggregate supply function, as defined by Keynes in his *General Theory* on p. 25. Assuming, as Professor Wells has done, under perfect competition, the economy is producing, in the short run, the homogeneous product X, with homogeneous labour the only variable factor; then the "production function" is $X = F(N)$. Within the framework of these assumptions we will have $X' > 0$, $X'' < 0$ and $X''' = 0$. And according to the theory of factor pricing, we postulate

$$\frac{w}{X'} = Z' \qquad (1)$$

which simply implies that marginal cost is equal to price if $Z = F(N)$ is the aggregate supply function. Differentiating equation (1) with respect to (N), we will have:

$$Z'' = \frac{X'w' - wX''}{(X')^2} \qquad (2)$$

Since *before full employment* X'' is negative and w, w', X', $(X')^2$ are positive; thus Z'' is positive, which implies that the aggregate supply function changes at an increasing rate, and the curve is convex from below.

Dr. Wells' article is not really concerned either to deny or to affirm the results of the previous works on the shape of the aggregate supply function; it is concerned rather with stressing the importance and the properties of the employment function with the result that he is causing methodological confusion.

A. Kooros

Rutgers University.

Further Comments

P. Wells' re-formulation of Keynes' Aggregate Supply Function (A.S.F.) (Economic Journal, September 1960) states, in the present writer's opinion, in compact form the gist of Chapters 20 and 21 of the *General Theory*, The Employment Function and the Theory of Prices. We shall come back to this re-formulation at the end of this note, which is primarily concerned with the relation of the Chapters 20 and 21 to the famous Chapter 3, in which the terms *aggregate demand*, *aggregate supply function* and *aggregate supply price* are introduced. It is our contention that these terms are used in Chapter 3 in a form which throws no light whatever on prices and level of output and employment; Chapters 20 and 21 do not simply elaborate on Chapter 3, they present for the first time Keynes' theory of prices, output, employment. We should like to use for the Keynesian price theory such terms as aggregate supply function, but we can do so only if we are willing to forget the definition of these terms in Chapter 3.

I

1. Keynes uses in Chapter 3, Section I, the term aggregate supply price for denoting the *total* outlay required to produce the output of N workers. At no place in Chapter 3 does he indicate the particular nature of the relation between input of labour and output: for all we learn here, it may be a proportionality relationship, as in the more recent input-output analysis, but at variance with Wells' " usual " assumption $X'' < 0$ (where $X = X(N)$ is the short-run production function). Formally, nothing in Chapter 3 prevents us from writing the A.S.F. $Z = \phi(N)$ in the form $Z = hN$, where h is a constant.

Almost the whole discussion in Section I subsequent to the definition of the A.S.F. serves only to make clear that if entrepreneurs expect to be able to sell a certain output at a certain price they will hire the labour necessary to produce, with the help of equipment given as to quantity and quality, the output in question. Only by consulting Chapters 20 and 21 we find that the marginal conditions (marginal costs equal marginal revenue) are supposed to be fulfilled, and that the aggregate supply function $Z = \phi(N)$ has to be interpreted in this way.

2. In Section I there is also introduced the concept of an aggregate demand function $D = f(N)$, which in Section II allows Keynes to summarise the " General Theory of Employment." This statement, however, is not the general model of the General Theory but what we may call the " truncated " model. From the general model there is eliminated: (1) the money equation; (2) the determination of investment by the marginal efficiency of capital and the interest rate. Investment is defined—p. 29,

No. 4—as a residual, and in No. 5 as a datum, which comes to the same thing. The truncated model of Chapter 3 is identical with the well-known multiplier model; quite in accord with this interpretation, Professor A. Hansen, in *A Guide to Keynes*, 1953, p. 31, Fig. 2, presents the gist of Chapter 3 in a diagram that differs from the well-known income–consumption graphs only in replacing income by employment N, and rewriting consumption and investment accordingly; as in the income–consumption graphs, the addition of a constant I to the given consumption function and the insertion of a 45° diagonal determines actual employment. At no place does the commodity price level appear, apart from Keynes' reservation concerning the point of acquiescence, *i.e.*, the validity range of the Keynesian model.

II

The substance of Chapter 20 could be summarised by aggregating the short-run supply functions of the various commodities into an A.S.F.*: a short run production index as function of an appropriate price index and of a wage index. This new A.S.F.* would read $X = X(p,w)$; and if in the two basic equations of the Keynes–Hicks model of 1937 income and related variables are expressed in terms of the wage unit, we would have: $Y = pX/w = p/wX(p,w)$, i.o.w., income being determined, for given w, by the first two equations in terms of wage units, would govern, via the A.S.F.*, the price level.[1]

Aggregating in this way the supply curves of individual commodities may be objectionable, but there is no way out of this difficulty and Wells does not escape it: he has to assume that the economy produces a single commodity; his marginal productivity of labour is a short-run productivity, obtained by inverting the marginal cost curve, the costs consisting of labour only. Wells' repeated stress on the *equilibrium* nature of the A.S.F. must not mislead us into conceiving his equation $(1{\cdot}5)\ N = X'D/w\bar{X}$ as something like the usual demand–supply equations; for if so, he could not differentiate it with respect to the variable D. The aggregate demand $D = PX$ is now a given parameter which determines the number of workers required to produce that quantity X which, together with the appropriate price (to be obtained from (1) above or from Wells (1.2)), equals the given PX. Equilibrium of the firm is obtainable, within the limits of the capacity and the labour force, for *any* value of D.

Just as we should expect, an increase in D (upward shift or anti-clockwise rotation of the $(C + I)$ curve in the Hansen graph) increases N. "Additionally though, d^2N/dD^2 is negative." This follows because in Section I, No. 3, Wells *assumes* that, for $X = X(N)$, the second derivative

[1] I used this approach in a paper "The New Economics of Spending," *Econometrica*, July–October 1944, treating the price of consumables as function of consumption.

$X'' < 0$. As is well known, for a short-run supply curve under perfect competition this property can be demonstrated, and Wells' condition (5) reads: "Perfect competition prevails." *But must we retain it?* It is meaningful to construct for "peaceful" oligopoly industry supply curves which, over some range, would be horizontal, the prices not changing when demand expands as long as prime costs are not altered. The existence of a large sector with supply functions of this type must mitigate the upward slope of the A.S.F.*, soften the impact of an otherwise declining short-run marginal productivity of labour on real wages and extend the Keynesian range.

There is another reason why it seems preferable to write the Keynesian model in terms of a price–output relation and not of an employment function. There is some reason to deny the existence of a rigid relationship between output and labour input in the short run, largely because firms, to a varying extent, try to retain their labour force in the face of demand fluctuations that are considered to be temporary; we say, to a varying extent, because otherwise an employment output relation with an additive employment constant would establish a strict relationship.[1] If so then, over a certain range the marginal costs will rise less than they would if the firms always adjusted employment strictly to output.

HANS NEISSEN

New York.

MR. ROSENBERG ON "CAPITAL IMPORTS AND GROWTH"[2]

A COMMENT

MR. ROSENBERG proves, on the basis of the figures available, that, in the case of New Zealand, the contribution of foreign capital to growth has been negligible. There is no doubt that in the cases examined growth has been financed chiefly by voluntary or compulsory saving achieved within the country involved. However, the foreign capital which became available and which, in due time, has been repaid abroad, has served a very useful purpose, in that it has helped to smooth and to accelerate growth. It has allowed the country concerned, first, to plan its growth not only with the factors and data of the home market and with the foreign balances available but also with those which the world economy can supply on a loan basis; secondly, to pay off gradually the investments thus carried out; and thirdly, to do so easily when they have already started yielding an output. If this yield is exported, or if it replaces commodities formerly imported, independently of

[1] See, *e.g.*, G. W. Wilson, "The Relationship between Output and Employment," *Review of Economics and Statistics*, February 1960, and Wilson's other writings quoted there.

[2] W. Rosenberg "Capital Imports and Growth—The Case of New Zealand—Foreign Investment in New Zealand 1840–1958," ECONOMIC JOURNAL, Vol. LXXI, March 1961, pp. 93–114.

increased imports due to growth, the transfer problem will be simplified. It follows that notwithstanding foreign capital's apparently minor contribution to growth, it still serves a very useful purpose, as far as payments abroad are concerned, similar to the advantages derived, whenever a revolving credit is available to a firm trying to expand. I believe that this is one of the reasons why the loans of the I.B.R.D. are so useful whenever they are granted, despite the fact that they cover only that part of the investment to be spent outside the country where the investment is to be carried out. Of course, as far as these loans are concerned, it may be added that the I.B.R.D. grants only a fraction of the amounts needed all over the world. It is thus able to choose those where the difference between the interest rate and output expected is the greatest. The contribution of a nearly continuous prosperity must also be considered, particularly as far as transfer is concerned.

D. J. Delivanis
University of Thessaloniki.

A Further Comment

Mr. Rosenberg's interesting paper in a recent issue of this Journal raises a number of questions that seem to deserve further discussion.

Rosenberg's figures for New Zealand reveal a rather peculiar story—a story beginning with the period 1840–86, during which foreign debt was incurred largely it would seem in order to finance social investment. The ensuing growth in the debt from 1886 to 1935 is ascribed largely to the necessity of borrowing to meet interest payments on the debt outstanding. Here we have a phenomenon which may be conveniently described as the debt spiral, which represents a gloomy possibility for underdeveloped countries hoping to finance part of their development through external borrowing. In view of this problem it is important to indicate, at least briefly, under what conditions this phenomenon may be a recurring feature.

The problem can be illustrated with a very simple model. Suppose that an underdeveloped country is in international payments equilibrium with the value of exports equal to the value of imports, and that for convenience we divide the output of the country concerned into exports and goods produced for domestic consumption. We shall refer to the export and domestic sectors of the economy. Exports and imports refer only to merchandise trade, and no interest payments or transactions on capital account are assumed to take place initially.

Suppose that now some autonomous change takes place in the domestic sector of the economy, creating a demand for real capital in excess of that available domestically. The excess demand is satisfied by borrowing abroad, *i.e.*, creating overseas debt, and the funds raised are then spent in the lending country on the capital goods required. In the first period therefore an import surplus is created equal to the value of capital goods imported, which

is matched by an entry in the capital account. In the second period the additional real capital is employed in the domestic sector, and the gross national product rises accordingly. At best the level of imports will fall back to its former level, while at worst the income effect on imports will keep them at the new level or above. The point, of course, is that due to the debt created, an additional demand for foreign exchange exists in order to meet the interest on the debt. Everything then depends on the resultant effect on exports. Unless the increase in output of the domestic sector has somehow induced a suitable rise in the value of exports the interest payment will have to be met out of exchange reserves or by further foreign borrowing. As a result of the additional foreign-financed increase in output in the domestic sector, an export surplus is now required equal to the interest payment in order to avoid either of these two possibilities. Since foreign-exchange reserves cannot be drawn down indefinitely, most of the weight of adjustment will be thrown on the creation of further foreign debt, and the debt spiral has been launched.

This very simple analysis suggests that it is of critical importance for what the initial debt is created. If the excess demand for real capital occurred in the export sector, then there is little *a priori* reason for expecting the debt spiral to be started off, provided the initial investment is sound.

The situation of most underdeveloped countries is, however, obviously unfortunate, since their needs are related to a possible expansion of their domestic sectors and to heavy programmes of social investment. It is possible, of course, that the expansion of the domestic sector will be to some extent at the expense of imports, but in most practical situations it is likely that this is a very long-run phenomenon, and little relief will be gained in that direction for a considerable period. With regard to social investment on a large scale there is no *a priori* expectation that the current account surplus will react in any systematic way even in the long run.

The problem of the debt spiral is prior to the question raised by Rosenberg as to whether the debt created should be in the form of equity capital or fixed-interest debt.[1] Considerable further work on the theory of the debt spiral is required before this question can usefully be considered.

There is a further point, partly a matter of words, but mostly of substance, which relates to Rosenberg's basic conclusion that: "Not only did foreign investment not constitute any net real capital resources to New Zealand's development between 1887 and 1950, it positively harmed development." The point is that to the extent that interest payments can be borrowed on a continuous basis, the real burden of the debt is shifted on to the lenders. The truth in Rosenberg's statement is that the financial flow into New

[1] There is little to quarrel about with Rosenberg's remarks on this point, except from the practical point of view. The question is whether the underdeveloped countries are going to be able to persuade foreigners to hold fixed-interest debt. Certainly at the private level there are grave doubts, and it would seem that hopes for issuing fixed-interest debt must depend on the generosity of foreign governments or official aid and development sources empowered to absorb such debt.

Zealand on capital account was not accompanied by a flow of real capital, but simply offset by the interest payments. But suppose that it had not been possible to borrow interest payments,[1] then a larger proportion of current saving would have had to be devoted to servicing the foreign debt. To put the matter another way, for any given level of saving the rate of domestic investment would have had to be smaller. This is not a trivial matter, and to the extent that the real burden of the debt was shifted Rosenberg's basic conclusion must be interpreted with caution. In the absence of facilities to borrow interest payments the New Zealand rate of growth over the period (say) 1886–1934 would surely have been slower, and it is going too far to suggest that the borrowing that took place was actually inimical to New Zealand's growth rate.

R. J. Ball

University of Manchester.

A Rejoinder

I had hoped that I had made it clear in the paragraph preceding the one commented upon by Mr. Ball that I did not consider foreign investment between 1887 and 1950 entirely unhelpful in the process of economic growth of New Zealand. In fact, within the existing financial framework growth would have been impossible without foreign investment, although it actually served only to finance interest payments on previously incurred debt.

But if we compare the actual situation to a hypothetical one, the situation becomes different. Had New Zealand, by using import controls or any other modern device, reduced her imports between 1887 and 1906 by £21 million—something just short of 12% of her import bill during that period—and stabilised her foreign debt at £71 million and the consequent annual interest bill at £2·9 million, the following situation would have arisen:

(1) Period	(2) Interest payments (assuming stabilisation at 1886 level) £2·9 m.p.a., £NZ million.	(3) Export surplus, £NZ million.	(4) Need for import restriction to obtain zero balance in balance of payments (% of all imports).	(5) Balance of payments on current account (hypothetic), £NZ million.	(6) Balance of payments on current account (real), million.
1887–1906	58·0	41·0	12	±0	−17·0
1907–14	23·2	14·2	6	±0	−18·0
1915–19	14·5	35·0	—	+20·5	+ 9·0
1920–34	43·5	67·0	—	+23·5	−56·0
1935–39	14·5	33·0	—	+18·5	− 3·0

In looking at these figures their strictly hypothetical nature must be firmly remembered. If that is done, two facts emerge: First, it would have taken

[1] As noted by Rosenberg, *op. cit.*, p. 107, this is, of course, a manner of speaking. Nobody explicity "borrowed interest payments." This was simply the net effect.

28 years (1887–1914) of a restrictive import policy to stabilise New Zealand's foreign debt at 1887 levels. Secondly, the reward for this period of restriction in the subsequent period would have been a positive balance of payments on current account of £62·5 million, compared to the actual deficit of £50 million—an improvement of £113·5 million.

That balance-of-payments difficulties of the order indicated in column (6) are an ultimate depressant under gold-standard conditions will not be doubted. And gold-standard conditions prevailed until 1934. On the other hand, that a balance-of-payments surplus as shown in column (5) would act as a stimulant, both under gold standard and managed currency conditions, will hardly be doubted either. It is on this basis that I have argued that foreign investment may be said to have harmed development in New Zealand, at least during the period 1920–34.

While the above table is of a purely hypothetical nature, it is worth studying in view of the fact that many countries (including New Zealand) are embarking again on a policy of liberal borrowing. It appears that such a policy should be evaluated on the basis of choice between belt-tightening now and greater strength in the future versus less belt-tightening now but increased risks of balance-of-payments deficits in the future.

W. Rosenberg

University of Canterbury,
Christchurch, New Zealand.

INCOME AND INVESTMENT IN THE UNITED KINGDOM, 1856–1914: A NOTE

In an article published under the above title by Dr. Feinstein in the Economic Journal, June 1961, the references to my paper "The Construction Costs and the Value of the British Merchant Fleet, 1850–1938," in the *Scottish Journal of Political Economy*, Vol. III, 1956, and to my advice to Dr. Feinstein are not correct.

The former reference ignores the fact that in the paper quoted I have published not only indices of construction costs but also for costs per registered ton and their application to information about registered tonnage. Table III, on p. 58 of my paper, gives for each year over the period 1850–1938 estimates of the value of the total merchant fleet in four variants, combining two alternative price bases (at current and at historical prices) with two evaluations with regard to depreciation (first-cost value and value after depreciation). The values at historical prices have been derived by application of the estimated costs in the year of first registration of the respective tonnage still in use in a given year. For the evaluation of the depreciated value each age group (including the newest ships, the additions during current year) has been computed separately. Thus estimates have been

made both of the gross capital formation and of the net capital formation during the preparation of the published table.

As I have myself applied the estimated construction costs to the registered tonnage, there would be no point in making Dr. Feinstein a special suggestion of a procedure which would be "the most suitable way in which to use the indices of shipbuilding costs," as he suggests in note 1 on p. 370 of his article. The plain truth is that I have explained to him a simple, quite obvious thing, viz., that construction costs of machinery cannot come into consideration in connection with estimates about sailing vessels, and I have explained the grave mistake made in his thesis in disregarding something so obvious. The form of Dr. Feinstein's acknowledgment of this advice might mislead the reader, by making him assume that I did authorise Feinstein's using my construction costs in the way he did, either because I did not use them myself or because I have accepted his way of using them as an improvement of my estimate. I can assure the reader that neither is the case, and that in fact Dr. Feinstein's way of using my construction costs in shipbuilding leads to a serious deformation of what I have done.

The implied "improvement" should consist in bringing in a better basis for converting my indices to costs in £ per registered ton: Dr. Feinstein uses one year's production figure (from the *Census of Production* 1907) instead of my basis, the average value of exported new ships for 1905–9.

How far from a genuine improvement is this change is shown by the steep fall of the tonnage of new steamers registered during the years next to the year of Production Census, 1907. This suggests a great impact on the volume of work in progress. The tonnage of new steamers (in 000s of net registered tons) was: in 1906, 890; in 1907, 716; and in 1908, 387. My paper has warned readers against neglecting the impact of changes in work in progress on the comparability of registrations and production figures for a single year, and has explained why information from overseas trade has a greater research value for this particular purpose (see pp. 57–8 of my paper). Dr. Feinstein does not register my warning, and introduces the wrong basis without the slightest attempt to justify the deformation.

K. MAYWALD

London.

"INCOME AND INVESTMENT IN THE UNITED KINGDOM, 1856–1914": A REPLY

I HAD not imagined that my attempt to express my gratitude to Dr. Maywald for helpful discussions could be taken as implying that I was attributing any responsibility to him for the way in which I had used his series. If this was in any way implied, I wish to make it quite clear that he has no responsibility for the estimates.

More substantive issues are raised in the last two paragraphs of Dr. Maywald's note, and I should like to make the following points:

(i) The primary purpose of my article was to obtain annual estimates of total gross fixed capital formation by extrapolating the benchmark of £150 million derived from the 1907 *Census of Production*. It was therefore necessary to break down the benchmark into its major components and then to find appropriate annual indicators of quantity and price for each component.

(ii) For my purpose it was correct to include in the 1907 benchmark the estimate derived from the Census of the value of new shipbuilding work done for British owners, including any change (positive or negative) in work in progress (£18·5 million), and not Dr. Maywald's estimate [1] covering only the value of new ships completed (£21 million). This is in accordance with the conventional definition whereby the change in work in progress on fixed assets is treated as part of gross fixed capital formation.

(iii) For the extrapolation to other years I should ideally have applied one quantity indicator to the 1907 value of ships completed and another to the change in work in progress, which was approximately minus £2·5 million.[2] In practice, the only quantity indicator available is the tonnage completed, and I applied this to the net figure of £18·5 million, though it is obviously not a good indicator for the change in work in progress component of shipbuilding and implies a figure which is always negative. Dr. Maywald apparently suggests that the tonnage completed should be applied to the figure of £21 million. I fully accept that this gives a consistently annual series for the value of *ships completed*, and if I were publishing a series of figures for components of gross capital formation it would probably be best to give such a series for this component, defined explicitly as relating to completed ships only. This would not, however, solve the problem of extrapolating the change in work in progress, and it is essential to do this in order to estimate total gross fixed capital formation.

(iv) If I had taken the value of ships completed in 1907 as £21 million I would have had to reduce some other component of the benchmark by £2·5 million. In the absence of any separate quantity indicator for the change in work in progress this would, in practice, have meant reducing the residual "miscellaneous items." In my article I extrapolated the 1907 value of this component on the assumption that it moved in proportion to all other items, and I would now have to make the same assumption for the revised figure, including change in work in progress, and the estimates of total gross fixed capital formation would be only marginally different. This can be illustrated by the following calculations for the years of "serious deformation" to which Dr. Maywald refers:

[1] K. Maywald "The Construction Costs and Value of the British Merchant Fleet, 1850–1938," *Scottish Journal of Political Economy*, Vol. III, p. 57. (It may be noted that 1907 is the only pre-1914 year for which an estimate of the value of ships completed is given in this article.)

[2] This is the figure implied by the difference between the two estimates. In the light of the falling trend in tonnage completed mentioned by Dr. Maywald it seems to be fairly plausible.

(£ million)

Year.	Original estimates.				Proposed revision.			
	Ship-building.	Other Specified items.	Miscel-laneous items.	Total.	Ships com-pleted.	Other specified items.	Miscel-laneous items.*	Total.
1906	22·1	123·5	18·7	164·3	25·1	123·5	16·0	164·6
1907	18·5	114·4	17·1	150·0	21·0	114·4	14·6	150·0
1908	10·0	96·4	13·7	120·1	11·4	96·4	11·6	119·4

* Including change in work in progress.

(v) My conclusion is, therefore, that the only way of making a really serious improvement in my figures on the basis of Dr. Maywald's suggestion would be to introduce a series to measure changes in work in progress in the shipyards directly, and use this to estimate the figures for years other than 1907. So far as I am aware, no such series is available, and the amount at stake does not seem large enough to justify an elaborate attempt to produce one.

C. H. Feinstein

Department of Applied Economics, Cambridge.

A NOTE ON THE REAL BALANCES EFFECT

The "real balances effect" has been the subject of such long and continuous discussion that it would seem impossible that any important aspect of the argument could have been overlooked. It is, nevertheless, the purpose of this note to point out that at least one of the assumptions upon which the operation of the effect depends is by no means beyond question.

The "real balances effect" is said to render underemployment equilibrium impossible in a regime of flexible wages and prices. It does this because as long as unemployment persists wages and prices will fall, increasing the real value of assets held by the public. Once the real value of assets held by the public are greater than or equal to the amount that the public wishes to hold, saving will stop or, in other words, expenditures will increase. It is, of course, crucial that savings become zero at a positive interest rate.

It should be noted that, in this argument, it is the current real value of balances that is of critical importance. To the extent that the adequacy of money balances are judged in terms of their real value at some future date, the current price level is of importance only as it influences expectations of future levels of prices.

In order for the "real balances effect" to ensure a return to full employment, one of the following must be true:

(1) The public expects the current price level to remain unchanged for an indefinite period. The adequacy of real balances can then be judged in terms of the current price level.

(2) The public expects prices to return to more " normal " levels, but judges the adequacy of real balances only in terms of current price levels, *i.e.*, they have no negative time preferences.

(3) The public expects the price level to continue falling, but once the size of real balances reaches some specified level, time preferences become strong enough to more than offset the anticipated real interest to be gained by holding additional balances.

The first of these assumptions seems quite implausible when we consider the magnitude of price-level changes which even the supporters of the " real balances effect " admit as necessary to restore full employment.

Such large changes in the price level are almost certain to lead to either the expectation of still further decreases in prices or to expectations of a return to more " normal " levels of prices. The least plausible assumption is that, in these circumstances, the public will expect the current price level to remain unchanged.

The second assumption—that the public judges the adequacy of real balances only in terms of current price levels—loses much of its plausibility when we consider that the motives for holding balances include such things as the desire to provide for old age, the desire to pass on a legacy or to make provision for the replacement of worn-out capital equipment. In none of these cases are current consumption expenditures substitutable to any great extent for the holding of balances for the future. The adequacy of real balances held by this group (which will be referred to hereafter as Group A) will then be judged in terms of price levels anticipated at some future date.

Several courses of events are possible, depending upon which set of expectations predominates and the size of Group A's income and real balances relative to those of the remainder of the economy (hereafter referred to as Group B).

If expectations of a continued fall in prices predominate, then the real balances of Group A and Group B will be more than adequate. Whether expenditures increase or not will depend on the rate at which prices are expected to fall as compared to the time preference of the representative holder of real balances.

Several possible consequences are conceivable:

(1) If time preferences are strong and the rate at which prices are expected to fall is slow, the real rate of interest may be low relative to time preferences, in which case the real balances effect will operate.

(2) In the opposite case, where time preferences are weak or where the price level is expected to fall rapidly, the real rate of interest will be large relative to time preferences, in which case the rate of savings will not only fall but will, on the contrary, rise even after the market rate of interest has become zero. In this case the fall in prices will continue at a more rapid rate.

(3) The third possibility is that the anticipated rate of decrease in prices will be such that the real rate of interest will exactly offset time preferences and the rate of saving remains constant. The result in this case would be an underemployment equilibrium with a continually falling price level. This case, too, is compatible with a zero or negative market rate of interest.

In the case in which prices are expected to rise in the direction of a more " normal " price level (before the balances held by Group A are expected to be spent) several courses of events are again possible. Money incomes being lower, but the money value of the balances that Group A wishes to acquire remaining the same, a larger and larger proportion of money incomes must be saved as money incomes fall.

The possibilities in this case are:

(1) If Group A, or rather the income of Group A, is small relative to total incomes, its additional saving may be more than offset by the dissavings of those whose real balances have become larger than desired. In this case the " real balances effect " continues to work.

(2) If the income of Group A is large relative to total income, its increases in saving may more than offset the dissaving of the remainder of the economy. Prices would then presumably fall at an increasing rate and without any limit above the zero level.

(3) Relative sizes of income and relative responses to price changes could result in a situation where the rate of increase in savings of Group A would be exactly equal to the rate of dissaving of the remainder of the economy. Savings would then remain positive even with a zero or negative interest rate. In short, underemployment equilibrium is, in this case, compatible with price and wage flexibility.

Thus, the " proper " functioning of the real balances effect is only one of three possible courses of events, the other two being a continued fall of prices at an ever-increasing rate or an underemployment equilibrium with wages and prices continuing to fall, although not necessarily at an increasing rate.

James A. Gherity, Jr.

University of Buffalo.

CURRENT TOPICS

We offer our best congratulations to Professor A. K. Cairncross, who has been elected to be a Fellow of the British Academy.

We also extend our best good wishes and congratulations to Professor François Perroux on his election to be a Corresponding Fellow of the British Academy.

PROFESSOR S. R. DENNISON has been elected to the David Dale Chair of Economics, at King's College, Durham University, Newcastle-upon-Tyne.

Houblon-Norman Awards. The Trustees of the Houblon-Norman Fund invite applications for Fellowships or Grants in aid of research into the working of industry and finance in Great Britain and elsewhere and the economic conditions affecting them. Fellowships, which are intended for experienced research workers, are awared for full-time research for one year, which may be renewed for a second year. Grants are awarded for either full-time or part-time work. The amount of the awards, which will take effect from October 1, 1962, will depend upon the circumstances of the candidate and the probable expenses of his work. Applicants must be British subjects normally resident in the United Kingdom. The Trustees are prepared to relax this rule only in exceptional circumstance. Forms of application, which may be obtained from the Secretary of the Fund, c/o the Bank of England, London, E.C.2, should be returned not later than March 1, 1962.

THE Trustees of the Houblon-Norman Fund, on the recommendation of their Advisory Committee, have made the following awards of research grants for 1961/62:

Mr. Srinivasa Ambirajan, Research Student, University of Manchester.	The Influence of Economic Thought on the Policies Pursued by the British Government and East India Company in India.
Mr. R. P. Brooker, Lecturer in Accounting, London School of Economics.	The Voluntary Winding-up of Companies under the Procedure of the Companies Act, 1948.
Professor E. H. Phelps Brown, M.B.E., F.B.A., London University.	The Movement of Pay and Prices in Certain European Countries.
Mr. P. G. M. Dickson, Lecturer in History, Oxford. Fellow, St. Catherine's College.	The Financial Revolution in England, 1688–1756.
Mr. R. S. Gilbert, D.Phil., Student, Oxford.	The Australian Loan Council.
Mr. R. M. Hartwell, Reader in Recent Social and Economic History, Oxford.	Hand-list of English Country Banks (prepared by the late Neville Ward-Perkins).
Mr. James Pickett, Lecturer, Royal College of Science and Technology, Glasgow.	The Canadian Economy, 1871–1921.
Mr. S. B. Saul, Lecturer in History, University of Liverpool.	The Colonial Economic Policies of Joseph Chamberlain, 1895–1903.
Dr. Brinley Thomas, O.B.E., Professor of Economics, University College, Cardiff.	Long Swings in Construction in North Atlantic Countries since 1890.
Mr. A. J. Topham, Organising Tutor for the Workers' Educational Association, Cleveland Area of North Yorkshire.	The Operation of the Workers' Council System in Yugoslavia.

Erratum

MY attention has been drawn by Professor Tatemoto to a wrong transcription of the equation set out on p. 280 of the ECONOMIC JOURNAL, June

1960, which was quoted from my *Towards a Dynamic Economics*, ed. 1960, p. 42.

It should read:

$$C_r = C_o\left\{1 + \epsilon\left(1 - \frac{1}{T^2R^2}\right)\right\}$$

R. F. HARROD

Christ Church, Oxford.

THE following have been admitted to Life Fellowship of the Society:

Beard, F. G.
Bramwell, W. K.
Dickinson, Prof. H. D.
Ramaswami, V. K.

THE following have been admitted to Fellowship of the Society:

Aaronovitch, S.
Abbott, Prof. L.
Abdullah, R.
Adewunmi, C. S.
Ajiboye, E. O.
Akabusi, K. D.
Ambirajan, Dr. S.
Ampah, J. E.
Andreas, A. J. A. A.
Arkell, F. N.
Babalola, I. O.
Baldwin, M. D.
Barnett, Mrs. V. L.
Berenbau, M.
Bitmead, R. C.
Bleile, G.
Booth, J. C.
Breit, W.
Briant, R. L. W.
Bubeck, C. H.
Bubna, R. K.
Buckley, Prof. K. A. H.
Bugg, D. D.
Burgess, P. R.
Busch, J. K.
Cain, Capt. R. M.
Campbell, Miss J. E.
Cansick, P. A.
Carson, P.
Cheetham, R. J.
Chin, P.
Chung, J.
Clousen, A. R.
Cole, E. R.
Crowe, K. P.
Coutsoumaris, G.
Daw, E. D.
Dhar, B. N.
Dobie, J. D. M.
Dowling, P. W.
Downes, Miss B.
Enwin, J. S.
Eriagbon, E. E. O.
Filan, S. J.
Freathy, R. E.
Froats, C. S.
Fuller, D. H.
Gale, B.
Garg, S. P.
Gibson, R. W.
Gordijew, I.
Goustis, C.
Guldberg, H. H.
Hassall, G. L.
Holloway, R. G.
Hunter, Prof. A.
Jacob, Dr. C., Jr.
Joyce, P. C.
Kilby, P.
Kronstein, Dr. R.
Krzyzaniak, Dr. M.
Kwok Pak-Wing
Lancaster, A.
Leung Kwok-on
Levin, A. E.
Levitt, Mrs. K.
Lindley, G. K.
Lofthouse, H.
Marion, Prof. G.
Mark, W. W.
MacBride, J. C.
McCarthy, C. R.
McCrone, R. G. L.
McKee, A. F.
Mitchell, G.
Mitchell, P. M.
Mohamedani, S. G.
Moore, W. C.
Murphy, C.
Nair, Dr. D.
Needham, R.
Nichols, J. R.
Nworah, S. I.
O'Brien, P. B.

Ogundipe, J. O.
Okwesa, G. A.
O'Neile, M. J.
Park, M. J.
Patel, H. P.
Patel, P. J.
Patrick, D. D.
Phillips, T. J.
Ranganadhachary, A. V.
Rao, T. R. K.
Ries, P. T.
Robinson, B. R. G.
Routley, D. E.
Sametz, Z. W.
Shah, S. S. H.
Sharp, J. A. N.
Sidgreaves, B.
Singh, Prof. B.
Smith, Prof. D. C.
Sneddon, A. T.
Soetan, I. A.
Southgate, J.
Storey, D. G.
Stowell, G. B.
Strain, A. A.
Taylor, J. C.
Thirumalaisamy, S.
Thomas, A. P.
Thomas, C. H.
Thomopoulos, P. A. T.
Tyler, G. E.
y Urrutia, J. L.
Van Potta, S.
Voles, C. W.
Whitney, J.
Wilkinson, E.
Williams, R. B.
Willson, E. W.
Wilson, D. C.
Yim, Dr. L.
Zaidi, M. A.

THE following have been admitted to Library Membership of the Society:

Anand Swaroop Library, D.A.V. College, Kanpur, India.
Andhra Loyola College, Vijayawada, A.P. India.
Brookings Institution, Economic Specialists Group, Vietnam, Saigon.
Centro de Investigaciones Economicas, Buenos Aires, Argentina.
City College, Commerce Dept., 13 Surryya Sen St., Calcutta, India.
City Librarian, P.O. Box 1992, Wellington C.I., New Zealand.
Commerce College, Jamnagar, Gujarat, India.
Eastern Washington College of Education, Hargreaves Library, Cheney, Washington, U.S.A.
European Investment Bank, Brussels, Belgium.
Inter-American Development Bank, Washington 25, D.C., U.S.A.
Kansas City Public Library, Kansas City, Missouri, U.S.A.
Monash University, Faulty of Economics & Politics, Clayton, Victoria, Australia.
Provat Book Co., Tollygunge, Calcutta, India.
Ramakrishna Mission Institute of Culture Library, Calcutta 29, India.
Randolph Macon College, Lynchburg, Virginia, U.S.A.
Reeves Library, Westminster College, Fulton, Missouri, U.S.A.
Rhode Island College, Providence 8, R.I., U.S.A.
Santa Chandra Sekhar College, Puri, Orissa, India.
Socony Oil Company Inc., Paulsboro, New Jersey, U.S.A.
University of Idaho, Moscow, Idaho, U.S.A.
University of Nigeria, Nsukka, Eastern Nigeria.
University of Omaha, Omaha, Nebraska, U.S.A.

THERE is an unsatisfied demand for copies of the ECONOMIC JOURNAL for September 1960, December 1960 and June 1961. The Society will pay 5*s*. for any copies returned in good condition to the Secretary at the Marshall Library, Cambridge. No other issues than those mentioned are required or will be purchased.

WE draw attention by request to two international conferences that will be held during the summer of 1962:

(1) The Second Congress of the *International Economic Association* will be held in Vienna during the period August 30 to September 6. The general theme of the Congress will be *Economic Development*. The Congress, apart from two Plenary Sessions, will divide into four Sections, concerned respectively with: (1) "The Determinants of Economic Growth"; (2) "Industrialisation and Methods of Increasing Labour Productivity"; (3) "Techniques and Problems of Development Planning"; (4) "The Stabilisation of Primary Producing Economies."

The Congress is open to all members of national economic associations affiliated to the International Economic Association, of which the Royal Economic Society is one. A leaflet was included in the June issue of the ECONOMIC JOURNAL. Reservations should be made through the Österreichisches Verkehrsburo, Wien 1, Friedrichstrasse 7, Austria.

(2) *The Second International Economic History Conference* will be held in Aix-en-Provence during the period August 27 to September 2. There will be four Plenary Sessions and nine Section Meetings, covering a wide range of topics. A leaflet is included in this issue of the ECONOMIC JOURNAL.

The Conference is open to all interested members of the Royal Economic Society. Registration should be made before May 31 at latest. Applications, on the form attached to the leaflet, should be addressed to Professor G. Duby, Faculté des Lettres, l'Université, Aix-en-Provence, France, marked International Conference.

RECENT PERIODICALS AND NEW BOOKS

Journal of the Royal Statistical Society

VOL. 124, PART 2, 1961. *The Role of Models in Operational Research (with Discussion):* K. D. TOCHER. *Research on Mail Surveys (with Discussion):* C. SCOTT. *The International Distribution of Income, 1949 and 1957:* S. ANDIC and A. T. PEACOCK. *The Analysis of Survey Data on an Electronic Computer:* H. R. SIMPSON. *A Practical Demonstration of a Needle Experiment Designed to Give a Number of Concurrent Estimates of π:* B. C. KAHAN. *A Note on the Paper by W. E. Thomson on "ERNIE—a Mathematical and Statistical Analysis":* E. BOFINGER and V. J. BOFINGER. *The Recent Controversy over Resale Price Maintenance:* G. BORTS.

Economica

VOL. XXVIII, No. 111, AUGUST 1961. *International Trade and Economic Development:* A. K. CAIRNCROSS. *Ricardo and Marx:* G. S. L. TUCKER. *Unemployment and the Rate of Change of Money Earnings in the United States, 1900–1958:* R. J. BHATIA. *The Replacement of the Obsolescent Plant:* F. H. S. BROWN and R. S. EDWARDS.

Review of Economic Studies

VOL. XXVIII, No. 77, JUNE 1961. *The Analogy between Atemporal and Intertemporal Theories of Resource Allocation:* T. E. MALINVAUD. *Comparative Advantages and the Theory of Tariffs: a Multi-Country, Multi-Commodity Model:* R. W. JONES. *Additive Logarithmic Demand Functions and the Slutsky Relations:* K. J. ARROW. *Imperfect Capital Markets and the Theory of Investment:* L. FOLDES. *Monopolistic Competition and General Equilibrium:* T. NEGISHI. *Congestion and Idle Capacity in an Economy:* A. B. ARAOZ and H. B. MALMGREN.

The Manchester School of Economic and Social Studies

VOL. XXIX, No. 2, MAY 1961. *Monopoly and Competition in Television: Some Policy Issues:* P. O. STEINER. *An Analysis of Post-war Labour Disputes in the British Car Manufacturing Firms:* J. BESCOBY and H. A. TURNER. *Credit Restriction and the Supply of Exports:* R. BALL. *Restrictive Practices and After:* J. B. HEATH.

VOL. XXIX, No. 3, SEPTEMBER, 1961. *The Causes of the Great Depression, 1873–96:* D. COPPOCK. *The Rate of Interest and the Timing of Capital Projects:* A. MERRETT and A. SYKES. *The Cost Function for Crude Oil Production:* G. BIEDERMANN. *The Measurement of Quality Changes in Consumer Durables:* M. L. BURSTEIN. *Notes on Cost and Capacity:* BRUCE WILLIAMS.

Oxford Economic Papers

VOL. 13, No. 2, JUNE 1961. *On Teaching Public Finance:* U. K. HICKS. *Direct Additivity and Consumers' Behaviour:* H. A. J. GREEN. *The Nature and Effects of Gold Hoarding in Underdeveloped Economies:* A. G. CHANDAVARKAR. *The International Monetary Fund and Balance of Payments Adjustment:* W. R. ALLEN. *Costs in Retail Distribution in Great Britain, 1950–7:* S. POLLARD and J. D. HUGHES. *Inflation and Growth: Some Lessons to be Drawn from Latin-American Experience:* G. MAYNARD. *Balanced Growth and International Specialization: A Diagrammatic Analysis:* J. M. MONTIAS. *Cyclical Fluctuations and Economic Growth:* H. NEISSEN. *Cyclical Fluctuations and Economic Growth: A Reply to Mr. Neissen:* L. L. PASINETTI.

National Institute Economic Review

No. 16, JULY 1961. *The Economic Situation. The Chancellor's Measures. Labour Supplies: Trends and Prospects. Economic Growth: The Last Hundred Years.*

The Journal of Industrial Economics

VOL. IX, No. 3, JULY 1961. *The Scope of Fair Wage Comparisons:* H. A. CLEGG. *The Backward Art of Interdivisional Transfer Pricing:* J. A. MENGE. *Potential Competition and the United States Chlorine-Alkali Industry:* W. H. MARTIN. *A Note on Potential Competition:* E. BRUNNER. *A Note on the Size of a Market:* H. O. STEKLER. *The Measurement of Economies of Scale:* C. WINSTEN and M. HALL. *The Structure of Food-processing Industries 1935–55:* N. R. COLLINS and L. E. PRESTON.

London and Cambridge Economic Bulletin

No. 39, SEPTEMBER 1961. *The Economic Position. The U.S. Economy at Mid Year:* M. W. REDER and L. TARSHIS. *Quarterly Income and Expenditure:* C. H. FEINSTEIN. *Weekly and Hourly Wage Rates Since 1948:* J. R. CROSSLEY. *The Chancellor's Emergency Measures:* F. W. PAISH. *International Finance:* H. H. LIESNER.

The Economic History Review

VOL. XIV, No. 1, AUGUST 1961. *Towards an Intercontinental Model: European Overseas Expansion between 1500 and 1800:* F. MAURO. *The Noble Wine Producers of the Bordelais in the Eighteenth Century:* R. FORSTER. *Economic Warfare in the Crimean War:* O. ANDERSON. *Labour Productivity and Technological Innovation in the British Coal Industry, 1850–1914:* A. J. TAYLOR. *Population Density in Medieval Fenland:* H. E. HALLAM. *The Poor Employment Act of 1817:* M. W. FLINN. *British Trade Unions and Popular Political Economy 1850–1875:* R. V. CLEMENTS. *The Political Economy of Pearlshelling:* J. BACH. *The Study of Economic History in Japan:* Y. KOMATSU. *Middle-class Education and Employment in the Nineteenth Century: A Critical Note:* H. J. PERKIN. *Essays in Bibliography and Criticism XLV: The Economic History of the Jews:* C. ROTH.

Population Studies

VOL. XV, No. 1, JULY 1961. *Birth Control in Britain, I:* G. ROWNTREE and R. PIERCE. *The Rise and Decline of English Neo-Malthusianism:* F. H. AMPHLETT-MICKLEWRIGHT. *Some Estimates of the Reliability of Survey Data on Family Planning:* C. F. WESTOFF and R. G. POTTER. *A Study of Fertility and Infant Mortality in an Urban African Community:* T. BADENHORST and B. UNTERHALTER.

The British Journal of Sociology

VOL. XII, No. 2, JUNE 1961. *The Webbs and Social Theory:* M. COLE. *The Contribution of Sidney and Beatrice Webb to Sociology:* T. S. SIMEY. *Old Age in London and San Francisco: Some Families Compared:* M. YOUNG and H. GEERTZ. *Religion and Ritual: The Definitional Problem:* J. GOODY. *Culture Contact and Social Change:* J. H. M. BEATTIE. *Attitudes of 600 Adolescent Girls to Work and Marriage:* J. JOSEPH.

The Sociological Review

VOL. 9, No. 2, JULY 1961. *The Selection of Leaders in Ballybeg, Northern Ireland:* R. HARRIS. *The Swindon Social Survey: A Second Report on the Social Implications of Overspill:* J. B. CULLINGWORTH. *Parents' Expectations of the Junior School:* F. MUSGROVE. *A Theory of Corruption:* M. MCMULLAN.

The Farm Economist

VOL. IX, No. 10, 1961. *Farm Operating Capital as a Constraint—a Problem on the Application of Linear Programming:* J. D. STEWART. *The Practical Use of Linear Programming in Farm Planning Involving Problems of Flexibility and Uncertainty in Seasonal Labour Inputs:* A. M. M. MCFARQUHAR. *The Farm Economist's Library—Selected Publications November–December 1960:* R. FASNACHT. *Food and Agriculture, Notes and Statistics:* K. R. CLARK.

VOL. IX, No. 11, 1961. *Borrowing to Improve Farm Income, an American Experiment:* T. W. GARDNER. *Agricultural Economists and the Return on Capital:* A. W. ASHBY. *Agricultural Marketing Reference Sources:* J. C. ABBOTT. *Labour Requirements and Availability in British Agriculture:* G. P. HIRSCH. *A Note on the Theory of Demand and Supply in Relation to Land:* G. HALLETT. *The Farm Economist's Library—Selected Publications January–April 1961:* R. FASNACHT. *Food and Agriculture, Notes and Statistics:* K. R. CLARK.

British Tax Review

MAY–JUNE 1961. *Some Income Tax Aspects of Hire-purchase Agreements:* J. S. ZIEGEL. *Samples from a Stamp Collection:* W. PHILLIPS. *Continuing Annuities:* J. G. MONROE. *Settled Property and Death Duties:* J. R. S. REVELL. *Fiscal Systems—Canada:* J. H. PERRY.

Journal of the Institute of Actuaries

VOL. 87, PART I, No. 375. *Address by the President:* J. H. GUNLAKE. *"Blue Cross" and "Blue Shield". Insurance against Costs of Hospital and Medical Services in the United States:* J. S. THOMPSON. *The Radcliffe Report and the Long-term Rate of Interest. Abstract of the*

Discussion Opened by L. G. Hall. The British Association for the Advancement of Science. The Cardiff Meeting: F. A. A. MENZLER. *Continuous Mortality Investigation: Mortality of Assured Lives: Experience for 1953–58; Experience of Children's Deferred Assurances 1949–58. The Mortality of Assured Lives 1953–58:* H. A. R. BARNETT.

VOL. 87, PART II, No. 376, 1961. *Industrial Assurance and the Collecting Friendly Society To-day:* H. F. FEHER. *An Investigation into the Mortality of Impaired Lives:* R. D. CLARKE. *Continuous Mortality Investigation: Mortality of Annuitants: Experiences for 1955–58; Mortality of Pensioners under Life Office Pension Schemes: Experience for 1955–58.*

Bank of England

VOL. 1, No. 3, JUNE 1961. *The Financial Surplus of the Private Sector: 1960. Sale of the Prior Charges of Seven Steel Companies, March 1961. Finance for Exports. United Kingdom Overseas Portfolio Investments, 1958–1960.*

The Banker

VOL. CXI, No. 423, JULY 1961. *Under Fire Again. America on the Rebound. The Macmillan Gap—30 Years After:* J. BATES. *Italy's Calculated Risk. Dismantling Japan's Two-tier Economy:* M. H. FEHER. *Ireland and the Common Market:* G. FITZGERALD.

VOL. CXI, No. 426, AUGUST 1961. *Frontispiece:* F. W. ARNOLD. *A Financial Notebook. Pause—or Showdown? Commonwealth and Common Market. Decimalization: Case Not Proven:* J. HUNSWORTH. *Non-bank Credit and Monetary Policy:* R. F. HENDERSON and J. O. N. PERKINS. *"Necessity" and Expense Accounts:* SPECIAL CORRESPONDENT. *An Artist's Sketchbook—Barings, Bishopsgate. Strains in Lombard Street. Bank Advances for Wages:* M. MEGRAH.

VOL. CXI, No. 427, SEPTEMBER 1961. *Squeeze and Freeze World Payments and the I.M.F.:* R. S. GILBERT. *Growth Without Inflation:* E. V. MORGAN. *Lessons of Dutch Wages Policy:* A. BATENBURG.

The Bankers' Magazine

VOL. CXCI, No. 1408, JULY 1961. *Merchant Banks:* T. M. RYBCZYNSKI and S. FROWEN. *Export Credits:* L. ARCHIBALD and M. A. B. HAMLYN. *The Emperor's New Clothes:* E. J. MISHAN. *New Methods in Banking—XII:* R. HINDLE. *Prospects for Imported Food Prices:* K. JONES.

VOL. CXCII, No. 1409, AUGUST 1961. *Some Figuring on British Bank Profits:* PHAEDRA. *The Banking Half-year. Bankers on Company Law:* H. EDEY. *Section 54 Re-examined:* R. R. PENNINGTON. *Measuring Commodity Prices:* K. JONES.

VOL. CXCII, No. 1410, SEPTEMBER 1961. *The Chancellor's Panic Measures:* SIR RALPH HAWTREY. *Monetary Policy and Economic Growth:* M. NIVEAU. *Economic Report from the U.S.A.: The Upturn Well Under Way:* OUR AMERICAN OBSERVER. *Hire Purchase Revisited:* J. BATES.

Journal of the Institute of Bankers

VOL. 84, No. 4, AUGUST 1961. *The Economic Scene:* P. BAREAU. *The Pay-roll Tax and the Labour Market:* E. W. EVANS. *United Kingdom Regulations and Practice Regarding International Capital Movements.*

Barclays Bank Review

VOL. XXXVI, No. 3, AUGUST 1961. *The Finance of Exports. Into Europe. The Boom in Tin.*

District Bank Review

No. 139, SEPTEMBER 1961. *The Future of Technical Assistance:* T. E. CHESTER. *Industrial Development in the North West:* E. G. W. ALLEN.

Lloyds Bank Review

No. 61, JULY 1961. *The U.K. Economy 1951–61: Performance and Prospect:* G. HUTTON. *Money, Liquidity and Interest Rates:* E. V. MORGAN. *Peaceful Revolution in Latin America:* J. H. FERGUSON.

Midland Bank Review

AUGUST 1961. *Progress in Marketing Farm Produce. Graphical Survey. More Light on British Banking.*

National Provincial Bank Review

No. 55, August 1961. *A Time for Questions. Petroleum Chemicals:* J. M. Leonard.

The Three Banks Review

No. 50, June 1961. *Italy's Economic "Risorgimento":* P. Bareau. *The Future of International Trade and Payments:* J. E. Meade. *The Fraudulent Bond of Dr. Dodd.*
No. 51, September 1961. *Inflation and Growth:* T. Wilson. *A Glimpse of Banking in Hong Kong:* L. S. Pressnell. *The Rise of Glasgow's West Indian Trade, 1793–1818.*

Westminster Bank Review

August 1961. *Shop Window in Moscow:* R. J. Clark. *The Logic of National Debt Policy:* J. Wiseman. *Trade Unionism in the Fifties:* E. W. Evans. *Capital Needs in Horticulture:* W. L. Hinton.

Planning

Vol. XXVII, No. 453, July 1961. *Agriculture, the Commonwealth and EEC.*
Vol. XXVII, No. 454, August 1961. *Economic Planning in France.*

Town and Country Planning

Vol. XXIX, No. 5, May 1961. *The Crisis for British Planning:* M. J. Wise. *The Growth of the London Region:* W. Thomas. *North America: Planning without a Plan:* N. Pearson.
Vol. XXIX, No. 6, June 1961. *The London Region and the Development of South-East England: 1961 to 1981. The First Scandinavian Town Planning Conference:* K. Jones. *New Towns as Regional Centres:* P. D. McGovern.
Vol. XXIX, No. 7, July 1961. *The Parisian Agglomeration:* G. S. Short. *Off-street Parking in Residential Areas:* S. Jensfelt.
Vol. XXIX, No. 8, August 1961. *Highway Folly:* P. H. O. S. *Population, Employment and Housing Trends in the West Midlands:* D. E. C. Eversley and V. Jackson. *The Experience of West Midlands Industrial Dispersal Projects:* B. Loadsby. *Inquiry into Proposed Site for Skelmersdale:* L. B. Keeble. *Study Tour of American Cities 1961:* W. Burns. *The Planning Commissioner:* W. L. Taylor. *Private Enterprise Town Building:* J. R. Atkinson.
Vol. XXX, No. 9, September 1961. *New Towns and Whitehall Blues:* Editor. *Planning for "Quality of Living": a review of "Cities in Flood":* W. F. Deedes. *Czechoslovakia in 1961:* P. Benson. *The American Regional Shopping Centre:* L. H. Wilson. *The Future of Covent Garden. Housing Preferences in the U.S.A.:* H. W. Eldredge. *Semi-detached Views:* W. Small.

The Journal of the Institute of Transport

Vol. 29, No. 5, July 1961. *The Philosophy and Practice of Medicine in the Transport Industry:* L. G. Norman. *The Ground Transport of Air Freight in the United States:* G. Griffiths. *Railway Wagon Utilisation and the Problem of Cripples:* F. Shillito. *Visit to Belgium, 1961. The Structure and Organisation of Transport in Belgium:* M. Poppe.

Progress

Vol. 48, No. 269, May 1961. *New Roads Lead to Rome: Italy's Great Tunnel and Highway Plan:* G. Corbellini. *The International Chamber of Commerce:* G. Hodgson. *Private Enterprise in Economic Development:* P. Kuin. *European Studies in a New University:* A. Briggs. *The Scientist and the Marketeer: an Experiment in Communication:* L. Buckley. *The Blind in Industry:* P. O'Donovan. *Education, Training and Employment of Young People:* C. Lloyd.
Vol. 48, No. 270, August 1961. *Disunited Europe:* A. Loveday. *Art in the Welfare State:* K. W. Jensen. *The Social effects of Television:* M. Abrams. *The Introduction of a Decimal Currency System in South Africa:* E. H. D. Arndt. *English Comprehensive Schools:* F. J. Dwyer. *The Growing Lack of Water in an Industrializing World:* W. F. J. M. Krul. *The Chemical Industry in Holland:* D. de Jong.

Hard Fibres

No. 41, June 1961. *Trend in Canada. Problems Facing Abaca Producers. Market Reports: I. New York. II. London.*

Steel Review

No. 23, JULY 1961. *Steel and the Balance of Payments. The United States: Steel Takes the Offensive. High Speed Freight Trains Pose an Industrial Problem. Steelworks in the Making. Tomorrow's Transport. British Steel in Moscow.*

Which?

JULY 1961. *Kitchen Floor Tiles. Mothproofers. Furniture Removals. Kitchen Sinks. Tipping.*

The Economic Record

VOL. 37, No. 78, JUNE 1961. *Principles of Monetary Policy:* R. F. HENDERSON. *Work Stoppages in the United States and New Zealand:* E. K. EBERHART. *Professor Hansen and the Economics of the Soviet Challenge:* K. BIEDA. *Theory of the Growth of the Firm:* B. L. JOHNS and W. P. HOGAN. *Companies and Squatting in the Western Division of New South Wales, 1896–1905:* N. CAIN.

The South African Journal of Economics

VOL. 29, No. 2, JUNE 1961. *The Introduction of a Decimal Coinage System in the Union of South Africa:* E. H. D. ARNDT. *The Finance of Urban Local Government in Uganda:* T. A. KENNEDY. *The Formal Analysis of Joint Supply:* R. MCKINNELL.

Finance and Trade Review (Volkskas Ltd.)

VOL. IV, No. 5, MARCH 1961. *The National Income of Bechuanaland Protectorate: 1955:* D. P. ERASMUS. *Review of Economic Conditions in the Union in 1960.*

VOL. IV, No. 6, JUNE 1961. *Oligopoly and the Monopoly Problem:* D. J. MOUTON. *South Africa's Budget and the Level of National Economic Activity:* J. JONES. *The Place of Secondary Industry in South African Economy:* F. W. MARX.

The Canadian Journal of Economics and Political Science

VOL. 27, No. 3, AUGUST 1961. *Robert Coats and the Organization of Statistics:* N. KEYFITZ and H. F. GREENWAY. *Keynes's Identity, Ricardian Virtue, and the Partial Dichotomy:* R. E. KUENNE. *Simple Majority Voting, Game Theory, and Resource Use:* J. M. BUCHANAN. *The Capital and Labour Requirements for Canada's Foreign Trade:* D. F. WAHL. *The Short-run Effects of Instalment Credit Control:* A. C. CHIANG.

The Australian Journal of Statistics

VOL. 3, No. 1, APRIL 1961. *The Comparison of Linear Regressions for Sets of Correlated Variates:* D. J. FINNEY and M. R. SAMPFORD. *The Combination of Probabilities: an Application of Orthonormal Functions:* H. O. LANCASTER.

The Indian Economic Review

VOL. V, No. 2, AUGUST 1960. *Adam Smith on Value:* A. K. DAS GUPTA. *Impact of Price Movements on Areas under Crops in India—Cotton: A Case Study:* D. NARAIN. *The States' Indebtedness to the Union Government:* N. GANGULI. *The Use of Stochastic Linear Programming in Planning:* G. TINTER.

Applied Economic Papers

VOL. 1, No. 1, MARCH 1961. (Published by Dept. of Commerce, Osmania University, Hyderabad, India). *The Public Sector in India:* V. K. R. V. RAO. *Efficiency in the Public Sector:* P. H. APPLEBY. *Profits of Public Enterprises:* V. V. RAMANADHAM. *Top Management and Productivity:* B. K. NEHRU. *Idle Capacity in the Metallurgical Industries:* D. U. SASTRY. *The Share of Wages in Industrial Incomes:* A. S. JAGANNADHA RAO. *Refrigerator Production: A Case Study of the Allwyns:* S. V. SARADA. *Land Reforms in India:* W. C. NEALE.

The Pakistan Development Review

VOL. 1, No. 1, SUMMER 1961. (Published by the Institute of Development Economics, Old Sind Assembly Building, Bunder Road, Karachi 1, *Industrial Location and Physical Planning in Pakistan:* J. C. EDDISON. *Income Velocity and Pakistan's Second Plan:* R. C. PORTER. *Financing the Second Five Year Plan:* A. R. KHAN. *A First Glance at Pakistan's Age Distribution:* K. J. KROTKI. *"A Measure of Inflation in Pakistan"—A Summary:* S. U. KHAN.

The Malayan Economic Review

VOL. VI, No. 1, APRIL 1961. *A Brief Review of some Theories of Economic Growth:* W. M. CORDEN. *Productivity and Income from Rubber in an Established Malay Reservation:* E. K. FISK. *The Competition between Synthetic and Natural Rubber:* T. R. MCHALE. *Some Causes and Consequences of Economic Growth in Japan:* M. SHINOHARA. *Land Reform and Agricultural Development in Taiwan:* H. S. TANG and S. C. HSIEH. *Economic Development in South Vietnam, 1954–60:* TON THAT THIEN.

The National and Grindlays Review

VOL. 7, No. 3, JULY 1961. *Commonwealth and Common Market. Economic Growth in Tanganyika.*

Social and Economic Studies

VOL. 10, No. 2, JUNE 1961. *Education and Economic Development:* W. A. LEWIS. *Some National Income Aggregates for Jamaica, at Constant Prices:* J. BETHEL. *Labour Commitment among Jamaican Bauxite Workers: A Case Study:* R. L. ARONSON. *The Imputation of Values to Intra-company Exports: The Case of Bananas:* R. A. LABARGE. *The House at Kenscoff, Haiti:* S. COMHAIRE-SYLVAIN. *Mixed Economic Statecraft and Democratic Safeguards:* K. K. KURIHARA.

The Irish Banking Review

JUNE 1961. *The Irish Budget. The Irish Management Institute. The Reserve Centres and the International Monetary Fund:* E. M. BERNSTEIN.

SEPTEMBER 1961. *The Common Market. The Irish Economy in 1960:* E. NEVIN.

International Labour Review

VOL. LXXXIII, No. 6, JUNE 1961. *Stabilisation and Training of Manpower in the Forestry Industry in Byelorussia:* F. SAMUILENKO. *Improving In-plant Training in the Federal Republic of Germany:* E. KRAUSE. *Workers' Education in Asia: The Experience of the Asian Trade Union College of the I.C.F.T.U.:* V. S. MATHUR. *The Influence of International Labour Conventions on Italian Labour Legislation:* LUISA RIVA-SANSEVERINO. *The Employment of the Handicapped in Israel.*

VOL. LXXXIV, No. 1–2, JULY–AUGUST 1961. *Immigration of Foreign Workers into the Federal Republic of Germany:* H. M. DREYER. *Observations on the Financing of Social Security in the Common Market Countries:* J. J. RIBAS. *Economic Growth and Social Policy in Latin America: the Seventh Conference of American States Members of the I.L.O. The United States Labor–Management Reporting and Disclosure Act, 1959: Its Background and Early Operation:* M. WEISZ. *Recent Trends in Labour Legislation for Hired Agricultural Workers in Latin America. Statistics: October 1960 Inquiry.*

VOL. LXXXIV, No. 3, SEPTEMBER 1961. *The Papal Encyclical "Mater et Magistra":* J. M. JOBLIN, S. J. *Social Security in Africa South of the Sahara. Labour–Management Relations in Tunisia:* N. LADHARI.

International Financial Statistics

VOL. XIV, No. 6, JUNE 1961. Usual Statistical Material.

VOL. XIV, No. 7, JULY 1961. *New Government Finance Data for Chile. Revised Money and Banking Data for Nicaragua.*

International Monetary Fund Staff Papers

VOL. VIII, No. 2, MAY 1961. *Professor Triffin on International Liquidity and the Role of the Fund:* O. L. ALTMAN. *A Brief for the Defense:* R. TRIFFIN. *An Exchange-market Analysis of the U.S. Balance of Payments:* W. R. GARDNER. *Some Mathematical Notes on the Quantity Theory of Money in an Open Economy:* S. J. PRAIS. *Money Supply and Imports:* J. M. FLEMING and L. BOISSONNEAULT. *Relative Growth of Exports of Manufactures of United States and Other Industrial Countries:* A. ROMANIS. *Recent Progress in Latin America Toward Eliminating Exchange Restrictions:* F. A. COLLINGS. *The Fund Agreement in the Courts—VI:* J. GOLD.

International Social Science Journal

VOL. XIII, No. 2, 1961. *Recent research on racial relations.*

Econometrica

VOL. 29, NO. 2, APRIL 1961. *Aggregation of Variables in Dynamic Systems:* H. A. SIMON and A. ANDO. *On the Cost of Approximate Specification in Simultaneous Equation Estimation:* F. M. FISHER. *The Graduation of Income Distribution:* P. R. FISK. *Behavioristic Foundations of Utility:* P. SUPPES. *Aggregation in Leontief Matrices and the Labour Theory of Value:* M. MORISHIMA and F. SETON. *A Note on "Aggregation in Leontief Matrices and the Labour Theory of Value":* L. JOHANSEN. *Nonlinear Programming by the Simplex Method:* H. O. HARTLEY. *A Note on the Residual Variance Estimation in Simultaneous Equations:* A. L. NAGAR. *A Note on the General Possibility Theorem of the Social Welfare Function:* Y. MURAKAMI.

Revue de l'Institut International de Statistique

VOL. 29, NO. 1, 1961. *Some Approximations to the Percentage Points of the Non-central T-distribution:* C. VAN EEDEN. *Review of International Statistics.*

Public Finance

VOL. XVI, NO. 1, 1961. *Debt Management—A General Report:* E. NEVIN. *British Public Debt Policy:* E. NEVIN. *L'évolution de la dette publique en France depuis 1945 et ses enseignements en matière de "Debt Management":* H. BROCHIER. *Debt Management in den Niederlanden seit 1945:* C. GOEDHART. *Debt Management: Some Theoretical Aspects (American report):* E. R. ROLPH.

Kyklos

VOL. XIV, NO. 3, 1961. *Current Economic Problems:* P. JACOBSSON. *The Triffin Plan: Diagnosis, Remedy, and Alternatives:* L. B. YEAGER. *Integration in Less Developed Areas:* R. L. ALLEN. *Das Verhältnis von Staat und Wirtschaft in Deutschland am Beginn der Industrialisierung:* W. FISCHER. *Some Interrelationships between Agricultural Trade and Economic Development:* B. C. SWERLING. *Marketable Surplus of Food and Price Fluctuations in a Developing Economy:* P. N. MATHUR and H. EZEKIEL. *A Note on Agriculture in the European Common Market:* J. H. RICHTER. *The Impact of Price Level Changes on the Measurement of Business Income:* R. E. SLESINGER and T. E. HOLLANDER.

The American Economic Review

VOL. LI, NO. 3, JUNE 1961. *The Short Cycle in Residential Construction:* J. M. GUTTENTAG. *The Cyclical Sensitivity of the Labor Supply:* W. L. HANSEN. *Effect of Tariff Changes on Imports:* M. E. KREININ. *Marx and Soviet National Income Theory:* V. HOLESOVSKY. *Industrial Price Control: French Experience:* J. SHEAHAN. *Equilibrium Growth Models:* J. ROBINSON.

Annals of the American Academy of Political and Social Science

VOL. 336, JULY 1961. *Is International Communism Winning?*

The Journal of Political Economy

VOL. LXIX, NO. 3, JUNE 1961. *The Economics of Information:* G. J. STIGLER. *Welfare Aspects of Benefit–Cost Analysis:* J. V. KRUTILLA. *Land Values and the Measurement of Highway Benefits:* H. MOHRING. *The Search for a Risk Premium:* R. W. GRAY. *Elasticities of Substitution and Constant-output Demand Curves for Labor:* J. R. MINASIAN. *How Income Ought To Be Distributed: Paradox Regained:* R. H. STROTZ.

VOL. LXIX, NO. 4, AUGUST 1961. *Industrialization, Factor Markets, and Agricultural Development:* W. H. NICHOLLS. *The Economic Theory of Socialism: A Suggestion for Reconsideration:* J. DREWNOWSKI. *Flight Insurance and the Theory of Choice:* R. EISNER and R. H. STROTZ.

The Review of Economics and Statistics

VOL. XLIII, NO. 2, MAY 1961. *International Aid for Underdeveloped Countries:* P. N. ROSENSTEIN-RODAN. *The Burden of Debt:* A. P. LERNER. *The Flexibility of Anticyclical Monetary Policy:* W. H. WHITE. *Regional Wage Differences in Manufacturing in the Postwar Period:* M. SEGAL. *A Multi-sector Model of Balanced Growth:* D. V. T. BEAR. *Problems of Growth Policy:* W. H. L. ANDERSON and J. CORNWALL. *Innovation, Diffusion, and Productivity Changes:* T. Y. SHEN. *Public Sector Productivity:* H. D. LYTTON. *Weather and the Demand for Space Heat:* A. M. STROUT. *A Short-term Planning Model for the Indian Economy:* P. DESAI. *Diffusion Index and First Difference Forecasting:* H. O. STEKLER. *Discrimination and the Occupational Progress of Negroes:* E. RAYACK.

The Southern Economic Journal

VOL. XXVIII, No. 1, JULY 1961. *On the Inequality of the Rate of Profit and the Rate of Interest:* C. B. HOOVER. *Adam Smith's Theory of Social Science:* J. F. BECKER. *The Methodology of the Price Support Program for Wheat:* F. C. GENOVESE. *On the South's Recent Economic Development:* S. L. MCDONALD. *Interregional Income Differences: Self-perpetuation:* R. B. HUGHES, JR. *Slavery and the Population of the South:* W. L. MILLER. *Organized Labor and the Tariff:* R. D. LEITER.

Industrial and Labor Relations Review

VOL. 14, No. 4, JULY 1961. *Unionism Among Retail Clerks in Postwar Britain:* R. E. L. KNIGHT. *Compulsory Retirement of Air Line Pilots:* K. M. RUPPENTHAL. *Our Future Industrial Society: A Global Vision:* S. B. LEVINE. *Further Experience of the UMWA Welfare and Retirement Fund:* R. J. MYERS. *Factors Determining the Labor-force Participation of Married Women:* T. A. MAHONEY. *On the Folklore of the Backward-sloping Supply Curve:* H. G. VATTER. *Right-to-work Laws—Symbols or Substance?:* J. W. KUHN. *Responsibility of Individual Employees for Breaches of No-strike Clauses:* R. A. GIVENS.

The Journal of Economic History

VOL. XXI, No. 2, JUNE 1961. *The Economic Expansion of Lombardy, 1300–1500: A Study in Political Stimuli to Economic Change:* D. F. DOWD. *French Entrepreneurship During the Restoration: The Record of a Single Firm, the Anzin Mining Company:* R. J. BARKER. *The Economic History of India: A Bibliographic Essay:* M. D. MORRIS and B. STEIN. *The Expansion of the Labor Market in Capitalist Russia: 1861–1917:* G. V. RIMLINGER. *Industrial Borrowing by the New England Textile Mills, 1840–1860. A Comment:* B. VATTER. *Mrs. Vatter on Industrial Borrowing. A Reply:* L. E. DAVIS.

Economic Geography

VOL. 37, No. 3, JULY 1961. *Two Kinds of Geography :* W. R. SIDDALL. *Industrial Development in the Vancouver Area:* P. D. MCGOVERN. *Geography and Human Ecology:* L. F. SCHNORE. *Locational Patterns of American Automobile Assembly Plants, 1895–1958:* C. W. BOAS. *Diversification of the Economy of the Cacao Coast of Bahia, Brazil:* R. L. STEVENS and P. R. BRANDÃO. *Economic Geography: A Framework for a Disciplinary Definition:* M. J. WEBB. *Chile's New Iron and Steel Industry:* C. L. WHITE and R. H. CHILCOTE.

The Journal of Accountancy

JUNE 1961. *Distinguishing Between Purchase and Pooling:* S. R. SAPIENZA. *Partnership Agreements for CPAs:* W. R. HEPWORTH. *Creditors' Collection Problems:* J. W. JOHNSON. *An Analysis of Income Tax Allocation:* R. A. STEINER.

JULY 1961. *Retrospect and Prospect:* G. O. MAY. *The Management Service Function. Data Processing Centers and the CPA:* R. F. LEWIS. *Fund Concepts as Accounting Postulates:* H. W. BORDNER.

AUGUST 1961. *What's Wrong With Financial Reporting? Tax Effects of Inventory Methods:* J. F. BARRON. *Appraising Factoring for a Client:* D. G. FOULK. *Welfare and Pension Plans Disclosure:* O. H. CHRISTENSEN.

Revue d'Économie Politique

VOL. 71, No. 2, MARCH–APRIL 1961. *La contribution du rapport Radcliffe à la théorie de la politique économique:* D. J. DELIVANIS. *Croissance industrielle et commerce extérieur:* H. DENIS. *Le protectionnisme fiscal dans le marché commun:* R. HIGONNET. *Chronique de conjoncture:* J. L. GUGLIELMI and P. CARRÈRE.

VOL. 71, No. 3, JUNE 1961. *Monnaie et expansion. Le rôle de la Banque centrale:* P. DIETERLEN. *Monnaie et expansion:* R. BEAUVOIS. *Les techniques monétaires et l'évolution conjoncturelle de la République fédérale allemande:* C. PENGLAOU. *Chronique internationale:* J. L. GUGLIELMI. *Les problèmes du développement économique.*

VOL. 71, No. 4–5, JULY–AUGUST 1961. *La situation démographique:* L. BUQUET. *Les prix:* R. MARBOT. *Les comptes de la nation:* P. MAILLET. *Politique et législation fiscales:* C. COLLIARD. *Le budget, la trésorerie, la dette publique:* C. CORDEBAS. *Le marché de l'argent à court terme et le marché des changes:* H. K. *Les caisses d'épargne:* J. NOIREAU.

Revue Économique

VOL. XII, No. 4, JULY 1961. *La S.N.C.F. face à la concurrence:* P. COULBOIS. *Y a-t-il une crise de structure de la construction navale?:* P. LÉONARD. *Marine marchande et pays en voie de développement économique:* P. BELLOIN.

Revue de Science Financière

No. 3, JULY 1961. *Le problème des subventions aux Etats-Unis:* C. L. HARRIS. *L'administration agrégat de la comptabilité économique:* J. MONTEIL. *Étude comparée du contentieux fiscal:* E. ALLORIO. *Du consentement de l'impôt:* CH. CADOUX. *Justification de l'impôt sur l'énergie:* C. BRISSAT.

Population

VOL. 16, No. 2, APRIL–JUNE 1961. *Les perspectives d'accroissement du nombre des emplois en France d'ici 1975:* A. SAUVY. *Normes qualitatives sur la population française acquises depuis 1945:* J. SUTTER. *Vues sur la planification de la main-d'œuvre en Union Soviétique:* R. PRESSAT. *Nos ressources de main-d'œuvre et les perspectives. Une étude d'un économiste soviétique en 1922:* S. STROUMILINE. *Fécondité et famille. Modèles mathématiques (II):* L. HENRY.

Journal de la Société de Statistique de Paris

VOL. 102, No. 1–3, JANUARY–MARCH 1961. *L'expérimentation en thérapeutique:* D. SCHWARTZ. *Le dollar et l'évolution monétaire de l'Europe Occidentale:* C. PENGLAOU. *Quelques concepts fondamentaux ou l'économie de l'entreprise dans la littérature étrangère:* L. PERRIDON.

Recherches Économiques de Louvain

VOL. XXVIII, No. 4, JUNE 1961. *La Belgique en 1960. Les finances publiques en 1960:* A. VAN BUGGENHOUT. *Les finances privées en 1960:* M. MASOIN. *Législation sociale et relations du travail en 1960:* J. VANDAMME. *Le charbon, le gaz et l'électricité en 1960:* H. VALSCHAERTS. *L'évolution, les perspectives et les problèmes de l'industrie pétrolière:* F. VAN DEN BROECK. *L'énergie nucléaire:* A. WIBAIL. *La sidérurgie belge en 1960:* R. COLLARD. *L'industrie chimique. Situation actuelle et évolution à prévoir:* M. HAES. *L'industrie textile belge en 1960:* R. POLUS. *L'agriculture en 1960. Transports et communications. Le commerce extérieur en 1960:* G. BUBLOT. *Prix, consommation, balance et revenus:* F. BAUDHUIN. *La situation économique du Congo en 1960:* R. BERTRAND.

Annales de Sciences Économiques Appliquées

VOL. XIX, No. 2, MAY 1961. *Aperçu de la conjoncture économique en Belgique: La départementation:* M. C. VAES. *L'infrastructure routière dans la Province de Luxembourg:* C. COULON. *Quelques caractéristiques des cadres d'une entreprise métallurgique française:* J.-E. HUMBLET. *L'évolution économique et la politique financière contemporaine du Maroc* (première partie): V. ROUQUET LA GARRIGUE.

VOL. XIX, No. 3, JULY 1961. *L'évolution économique et la politique financière contemporaines du Maroc:* V. ROUQUET LA GARRIGUE. *Les compagnies aériennes du marché commun au seuil d'Air-Union:* M. TILMANT. *Technique de l'assurance-incendie:* E. HAMOIR. *La départementation:* M. C. VAES. *L'état et la compétition économique:* F. L. VAN MUIJWINKEL.

Cahiers Economiques de Bruxelles

No. 11, JULY 1961. *La politique économique belge depuis 1958:* E. MARÉCHAL and L. MORISSENS. *La production et l'investissement des régions flamande, wallonne et bruxelloise:* G. CHAPUT and R. DE FALLEUR. *Facteurs influençant la consommation domestique de combustibles liquides et solides:* G. ARB. *Croissance et cycles économiques:* E. DELETAILLE. *La distribution des revenus dans le monde non communiste:* N. SCHMITZ. *Les possibilités de décentralisation régionale de la politique économique:* A. ADAM and L. MORISSENS.

Die Weltwirtschaft

No. 1, 1961. *Weltwirtschaftlicher Überblick. Länderberichte. Marktberichte.*

Schmollers Jahrbuch

VOL. 81, No. 3, 1961. *Wirtschafts und Marktforschung in Ost und West:* S. VARGA. *Der Standort der Forstwirtschaft in der Thünenschen Theorie:* K. MANTEL. *Typen der Selbstverwaltung:* H. KLOSS.

VOL. 81, NO. 4, 1961. *Gesellschaftspolitik-Sozialpolitik-Volkswohlfahrtpolitik:* G. ALBRECHT. *Dynamik der Organisierten Marktwirtschaft:* H. BUYER. *Ernährungshilfe und Bevölkerungsvermehrung in der Welt:* R. VON UNGERN STERNBERG.

Jahrbücher für Nationalökonomie und Statistik

VOL. 173, NO. 3, JULY 1961. *Über die Gleichgewichtsbedingungen in einer wachsenden Wirtschaft:* A. E. OTT. *Produktionsregulative Agrarsubventionen:* H.-G. SCHLOTTER. *Die Öffentliche Hand als Verkehrsunternehmer in der Bundesrepublik Deutschland:* A. F. NAPP-ZINN.

VOL. 173, NO. 4, SEPTEMBER 1961. *Zur Frage der Gesamtgrössenbetrachtung bei Marx und Keynes:* U. GRUBER. *Wettbewerbspolitik und Exportkartelle:* E. HOFFMANN.

Zeitschrift für die Gesamte Staatswissenschaft

VOL. 117, NO. 2, JUNE 1961. *Die Wahl einer optimalen Technik:* A. QUAYUM. *Die Entwicklung der öffentlichen Auslandsverschuldung Griechenlands seit der Begründung seiner nationalen Selbständigkeit:* W. WAPENHANS. *Das Arbeitskräftepotential als strukturelle Bedingung der wirtschaftlichen Entwicklung in Mitteldeutschland bis 1965:* D. STORBECK. *Eine Diagnose des derzeitigen Zustandes der Weltbevölkerung:* R. VON UNGERN-STERNBERG. *Werbung und Wettbewerb:* G. EISERMANN.

Wirtschaft und Statistik

VOL. 13, NO. 7, JULY 1961. *Die neue Klassifizierung der Berufe. Bei Wohnabsichten der Bevölkerung im Frühjahr 1960. Die Unterbringung der festverzinslichen Wertpapiere.*

NO. 8, AUGUST 1961. *Zur Berechnungsmethode und Aussagebedeutung der internationalen Kaufkraftvergleiche:* H. GÜNTER. *Die Dividende der Aktiengesellschaften:* R. BERNDSEN.

Vierteljahrshefte zür Wirtschaftsforschung

NO. 2, 1961. *Zur konjunkturellen Situation. Internationaler Überblick:* M. TEICHNER. *Westdeutschland:* H. MARTELL. *Volkswirtschaftliche Gesamtrechnung einschl. Geldvermögensrechnung für die Bundesrepublik Erstes Quartal 1961:* K. D. ARNDT and O. DE LA CHAVALLERIE. *Die vierteljährliche Entwicklung des französischen Sozialprodukts 1956 bis 1960:* H. SCHIMMLER. *Die Entwicklung der Bevölkerung in der Bundesrepublik von 1960 bis 1975 auf Grund einer neuen Vorausberechnung:* T. BOLLE. *Die Ausgaben für die Haltung privater Personenkraftwagen in den Jahren 1955 und 1959:* C. OTTO-ARNOLD and H. OTTO. *Buchbesprechung: The structure of the East German Economy:* STOLPER. *Zahlungabilanzpolitik:* KÜNG.

Wirtschaftsdienst (German text, English digest)

VOL. 41, NO. 7, JULY 1961. *Concentration–Economic Strength–Economic Power. Concentration and the Larger Area—Advantages and Dangers. Berlin–Bonn–Brussels. Regulating Competition in the European Economic Community: E.E.C. Rules on Competition and the Process of Integration. The German Economy: Selected Indicators.*

Finanzarchiv

VOL. 21, NO. 2, SEPTEMBER 1961. *Das Gesetz der wachsenden Staatsausgaben:* H. TIMM. *Die Bedeutung des Aquivalenzprinzips für die öffentliche Finanzwirtschaft:* H. HALLER. *Das Haushaltsrecht der Soujetunion und der Unionsrepubliken:* R. SZAWLOWSKI.

Allgemeines Statistisches Archiv

VOL. 44, NO. 4, 1960. *Der Verkehr als Objekt statistischer Beobachtung:* P. SCHMIDT. *Das Stichprobenverfahren in der Verkehrsstatistik:* H. KELLERER. *Wünsche und Anforderungen an die Verkehrsunfallstatistik für die Zwecke der Unfallverhütung:* E. MEYER.

Deutsche Aussen Politik

VOL. VI, NO. 5, MAY 1961. *Bonns gefährliches, aber hoffnungsloses Spiel:* J. KÖNIG. *Zur Unterstützung der jungen Nationalstaaten durch die Deutsche Demokratische Republik:* J. NITZ. *Eine neue Ära schwieriger Probleme für die U.S.A.:* G. WHEELER. *Die 14. Tagung der Weltgesundheitsorganisation und die Hauptfragen unserer Zeit:* R. FELBER. *Probleme der Wiedervereinigung Koreas:* H. UBLIG. *Der Kampf um die wirtschaftliche Unabhängigkeit der afrikanischen Staaten:* H. BÄR. *Britische Presse in der Hand der Monopole:* G. SCHAFFER. *Ausländische Truste greifen nach Brasiliens Mangan:* E. BAILBY.

VOL. VI, No. 6, June 1961. *Bonns hintergründiger Währungstrick:* H. W. AUST. *Die dritte Allafrikanische Völkerkonferenz:* H. BRASCH. *Sowjetunion führt in der Weltraumforschung:* H. ROSE. *Italien, Sowjetunion, Norwegen, Island und Chile:* W. B. ÜBER.

VOL. VI, No. 7, JULY 1961. *Der Friedensvertrag ist notwendig und unaufschiebbar:* P. WANDEL. *Die DDR ist eine Realität:* K. WUNSCHE. *Kubas Aussenpolitik:* W. BASLER. *Die Wiener Konvention 1961:* H. UHLIG.

Wirtschaft und Statistik

No. 6, JUNE 1961. *Der Depotbesitz an deutschen Aktien und festverzinslichen Wertpapieren. Zur Frage der Berechnung durchlaufender Reihen für die Indices mit dem neuen Basisjahr 1958:* K. HORSTMANN. *Eine durchlaufende Reihe für den Preisindex der Lebenshaltung nach der Neubasierung auf 1958:* S. GUCKES. *Zur Problematik der Rohertragsquoten in der Cross- und Einzelhandelsstatistik:* R. SCHULZ.

Wirtschaftsdienst (German text, English digest)

VOL. 41, No. 6, JUNE 1961. *The Beloved Taboos. Adequate Competition Regulation for the European Economic Community. Regulating Competition in the European Economic Community: Are Concept and Administration of German Regulations a Guidance?*

Monatsberichte des Österreichischen Institutes für Wirtschaftsforschung

VOL. XXXIV, No. 6, JUNE 1961. *Die österreichische Konjunktur im Frühjahr 1961.*

VOL. XXXIV, No. 7, JULY 1961. *Die wirtschaftliche Lage in Österreich. Strukturänderungen der internationalen Erdölwirtschaft.*

VOL. XXXIV, No. 8, AUGUST 1961. *Die wirtschaftliche Lage in Österreich. Der Fremdenverkehr Westeuropas. Kurzberichte: Strukturänderungen im Brennstoffverbrauch der Wärmekraftwerke. Statistische Übersichten: Österreische und internationale Wirtschaftszahlen.*

Schweizerische Zeitschrift für Volkswirtschaft und Statistik

VOL. 97, No. 2, JUNE 1961. *Das intra-regionale Gleichgewicht. Zur Integration von Standorttheorie und Theorie des internationalen Handels:* H. C. BINSWANGER. *Kapitalbildung und Wirtschaftswachstum:* E. KÜNG. *Operations Research und Statistik:* E. P. BILLETER. *Die Fruchtbarkeit der schweizerischen Bevölkerung von 1932 bis 1956:* A. MILLER.

Aussenwirtschaft

VOL. 16, No. 2, JUNE 1961. *Betrachtungen zur Aussenwirtschaftspolitik:* H. BACHMANN, A. BOSSHARDT and H. C. BINSWANGER. *Die Probleme der Entwicklungshilfe unter besonderer Berücksichtigung der OECD:* T. KRISTENSEN. *Schweizerische Währungspolitik vor 25 Jahren:* A. BOSSHARDT. *Möglichkeiten zur Erhöhung der internationalen Liquidität:* R. HARROD. *Aus der Tätigkeit des Schweizerischen Instituts für Aussenwirtschafts- und Marktforschung im Jahre 1960:* W. HUG.

De Economist

VOL. 109, No. 6, JUNE 1961. *De onderscheiding tussen interne en externe inflatoire factoren:* J. J. POLAK. *Vergelijking can twee monetaire modellen:* G. A. KESSLER. *Begrotingsprocedure en comptabiliteitswet:* J. PEN.

VOL. 109, No. 7–8, JULY, AUGUST, 1961. *Overheid en Centrale Bank:* G. M. VERRIJN STUART. *Enkele beschouwingen over de in ons land gevoerde zuivelpolitiek:* H. J. FRIETEMA. *De Simplextechniek:* I. J. MOL and others.

Ekonomisk Tidskrift

VOL. LXIII, No. 2, JUNE 1961. *Utrikeshandelsteorin—ett försök till "Ehrenrettung":* B. OHLIN. *Fyra metodologiska moment:* J. ÅKERMAN. *Utrikeshandel och ekonomisk tillväxt. Den marginella aspekten:* B. SÖDERSTEN. *Om stock och flow i ekonomisk teori:* B. HANSEN.

Skandinaviska Banken Quarterly Review

VOL. 42, No. 3, JULY 1961. *International Payments and the I.M.F.:* E. AMBJÖRN. *Realistic Testing of Market Campaigns:* O. HENELL. *Company Reports for 1960. The Economic Situation.*

Økonomi og Politik

VOL. 35, No. 1, 1961. *Frankrig under de Gaulle:* G. DAMBORG. *Aspekter af befolkningsspørgsmalet:* E. JØRGENSEN.

VOL. 35. No. 2, 1961. *Nigeria:* O. K. PEDERSEN. *Hovedtræk af det danske skattesystem:* T. HJORTKJÆR. *Den internationale økonomiske situation. Den danske økonomiske situation.*

Ekonomiska Samfundets Tidskrift

VOL. 14, No. 2, 1961. *Huru 1957 års devalvering förbereddes och verkställdes:* R. v. FIRANDT. *Utvecklingslinjer för vår skogsindustris produktionsvolym och produktionsinriktning:* J. O. SÖDERHJELM. *A Remark on Economics, Measurement, and Mathematics:* H. BREMS.

Giornale Degli Economisti e Annali di Economia

VOL. XX, No. 5, APRIL 1961. *Gradus ad Parnassum IV:* E. ZACCAGNINI. *Analisi Economica e problemi di politica: note introduttive:* F. CAFFÈ. *Puntualizzazioni sulla politica meridionalista:* G. FRIBELLA VELLA. *Il rapporto capitale-prodotto nell'economia italiana: aspetti teorici e risultati statistici:* A. GRAZIANI. *Probabilità del verificarsi di un pari o dispari di eventi in alcune distribuzioni:* L. VAJANI.

VOL. XX, No. 6, JUNE 1961. *Verso il Centenario della Finanza Publica Italiana:* A. SCOTTO. *Gradus ad Parnassum (cont.):* E. ZACCAGNINI. *Premesse Concrete e Ipotesi Teoriche Nell'Analisi Economica:* P. SYLOS-LABINI. *Saggio sulla Democrazia Radicale in Italia:* A. MACCHIORO.

Rivista di Politica Economica

VOL. LI, No. 6, JUNE 1961. *Atti del X Convegno di studi di economia e politica industriale tenutosi a Bologna nei giorni 7, 8, e 9 aprile 1961.*

VOL. LI, No. 7, JULY 1961. *Proclamazione dei vincitori del "Premio del cinquantenario": Liquidity:* R. HARROD. *Come accelerare lo sviluppo economico:* P. GUISTINIANI. *L'uomo protetto nella società:* G. M. BALDI. *Il sistema della denunce obbligatorie e il diritto transitorio:* T. ADDARIO. *Un grande realizzatore: Cavour:* A. FONTANA.

Banca Nazionale del Lavoro Quarterly Review

No. 56, MARCH 1961. *Monetary Stability and Economic Development in Italy, 1946–1960:* P. BAFFI. *Altman on Triffin: A Rebuttal:* R. TRIFFIN. *The Structure of Money Markets:* J. S. G. WILSON. *Current Problems of Co-operation Between Central Banks:* A. FERRARI. *The Adventures of the Lira:* D. M. STREET.

No. 57, JUNE 1961. *Central Banks and International Monetary Arrangements:* F. M. TAMAGNA. *Inventory Investment and the Rate of Interest:* W. H. WHITE. *Planning and International Integration in Soviet Germany:* W. F. STOLPER. *The Montevideo Treaty and Latin American Economic Integration:* M. S. WIONCZEK.

Rassegna Economica

VOL. XXV, No. 2, AUGUST 1961. *L'azione e le iniziative dell'Occidente verso i nuovi Stati africani dinanzi alla preminenza delle loro esigenze economiche:* E. CORBINO. *L'aiuto dell'Occidente ai Paesi sottosviluppati:* A. PIETTRE. *Equilibrio e squilibrio nello sviluppo e nella programmazione:* V. MARRAMA. *Lo spostamento degli indici economici secondo i paralleli geografici:* G. TAGLIACARNE. *La rivoluzione del 1848–49 e la "misura" dei riflessi sul Banco delle Due Sicilie:* D. DEMARCO. *La ricerca dei capitali per lo sviluppo economico:* G. PALOMBA.

Rivista Internazionale di Scienze Economiche e Commerciali

VOL. VIII, No. 6, JUNE 1961. *Structure de la liquidité et phénoménologie monétaire:* P. DIETERLEN. *La politica bancaria come problema di forza:* F. WORRET. *Il criterio della conferma in economia:* A. M. DELL'ORO. *L'insegnamento delle* human relations *nell'economia americana:* W. G. BROEHL, JR. *Fattori socio-culturali nell'evoluzione delle zone sottosviluppate:* A. ANFOSSI. *Un significativo caso di accordo tra impresa e lavoratori in tema di automazione:* G. MANGA.

VOL. VIII, No. 7, JULY 1961. *Il problem della scelta del tipo d'imposizione sulle vendite: L'imposte a cascata:* F. FORTE. *Il rendimento della programmazione d'impresa a lungo termine:* G. A. STEINER. *L'élite nella società capitalistica:* L. VON MISES. *Concorrenza lecita e illecita nelle professioni liberali:* A. GUASTI.

VOL. VIII, No. 8, AUGUST 1961. *E' l'inflazione un "perpetuum mobile" internazionale:* K. HOLBIK. *Valori e scopi in economia:* C. LANDAUER. *La funzione degli investimenti nel reddito nazionale di una economia pianificata:* K. LASKI. *L'OTAN et les Petits Etats:* P. VAN ZEELAND. *La struttura economica in uno spazio nazionale:* C. CASTELLANO. *Sull'andamento della mortalità in Italia dal 1881 al 1951:* G. CHIASSINO. *L'industria automobilistica tedesca:* R. FASANO.

Review of the Economic Conditions in Italy

VOL. XV, NO. 3, MAY 1961. *Situation and Prospects of Italian Air Transport:* N. CARANDINI. *Problems of the Italian Merchant Navy at the Beginning of 1961:* V. DANTE FLORE. *Land Transport in Italy:* M. D. VECOVO.

VOL. XV, NO. 4, JULY 1961. *One hundred years of Italian Economy:* M. F. AGGRADI. *Regional Structure of Italian Economy—VI:* F. MILONE. *Economy, Money and Credit in Italy in 1960.*

Economia Internazionale

VOL. XIV, NO. 2, MAY 1961. *Si livellano i valori azionari al saggio di interesse di mercato?:* L. AMOROSO. *Economies of Scale in the European Common Market:* B. BALASSA. *Government Expenditure Policy and Micro Multiplier Effects:* P. H. GOMMERS. *The Concept of Compensatory Official Financing: A Restatement for Balance-of-Payments Policy:* R. KUMAR. *Un modello interpretativo della distribuzione dei redditi:* F. BRAMBILLA. *A Note on the Foreign Trade Multiplier:* Y. SHINKAI.

Rivista Italiana di Economia Demografia e Statistica

VOL. XIV, NO. 4, OCTOBER–DECEMBER 1960. *Sui fattori economici e sociali della ripresa della natalità nei paesi anglosassoni d'oltreoceano:* M. LIVI BACCI. *Indagine su una distribuzione del numero dei morti per giorno relativa al Comune di Livorno:* V. BRUNO. *Teoria del calcolo dei rapporti ed un suo primo impiego nello studio di particolari distribuzioni statistiche:* L. PETRIOLI. *Movimento migratorio dell'Italia con l'estero:* G. MARROCCHI.

L'Industria

NO. 2, APRIL–JUNE 1961. *L'economia come scienza:* A. G. PAPANDREOU. *Sulle nozioni di ciclo di produzione, epoca, struttura, sviluppo:* S. CHERUBINO. *First Report of the Princeton Economic Time Series Project:* C. W. J. GRANGER. *Teoria dell'organizzazione, analisi microeconomica e teoria dell'oligopolio:* M. TALAMONA.

Italian Affairs

VOL. X, NO. 1, JANUARY–FEBRUARY 1961. *The Ten Year Highway Programme. The Centenary of Italian Unity. Public Works in 1959. The Boot and Shoe Industry. The Electrical Industry.*

VOL. X, NO. 2, MARCH–APRIL 1961. *The Glasswork of Murano. The Italian "Miracle." Special School for Administrative Training. Italian Foreign Trade. Marriages. Regional and Provincial Distribution of the Population. Family Groups in Approved Schools. The INA-Casa Housing Programme. The I.R.I. Group. Civil Aviation.*

VOL. X, NO. 3, MAY–JUNE 1961. *The Italian Constitution. Illiteracy and its Elimination. The Italian Radio and Television Corporation. Taxation in Italy. Post Office Savings Accounts in Italy. Nuclear Research and its Growth in Italy. The Electrical Industry. The Active Population and the Labour Force.*

Moneda y Credito

NO. 75, DECEMBER 1960. *Desarrollo económico y relación inter-sectores. Un análisis cuantitativo:* J. A. UROSA. *Los fondos o sociedades de inversion mobiliaria:* R. GALLOTTI. *Seguridad y fiscalidad:* S. M. MARIN.

Boletin de Estudios Económicos

VOL. XVI, NO. 52, JANUARY–APRIL. *Estabilizacion, Reactivacion y desarrollo economico:* E. DE FIGUEROA. *La alternativa agricultura o industria, como primer impulso del desarrollo economico:* R. P. D. IPARRAGUIRRE. *Politica de desarrollo en la economia de mercado:* E. DÜRR. *Programacion del desarrollo economico:* J. M. A. BUIL. *Planes de desarrollo economico:* S. G. ECHEVARRIA. *La inflacion, instrumento de politica economica?:* J. M. SOLOZÁBAL.

El Trimestre Economico

VOL. XXVIII, NO. 110, APRIL–JUNE 1961. *Un camino directo para la obtención de fórmulas de números índices:* F. ROSTRO. *Desarrollo económico sin inflación: la experiencia de Puerto Rico:* V. R. ESTEVES. *El sistema impositivo en la agricultura de las economías en proceso de desarrollo:* H. P. WALD. *Estabilización de los productos básicos:* E. LERDAU. *Tasa de desarrollo, mercado común y balanza de pagos:* J. W. HACKETT. *Conceptos y supuestos en las proyecciones a largo plazo del producto nacional:* S. KUZNETS.

Hitotsubashi Journal of Economics

VOL. 1, No. 1, OCTOBER 1960. (This Journal replaces the *Annals of the Hitotsubashi Academy*, and is published by Hitotsubashi University, Kunitachi, Tokyo.) *The Japanese Economy and the Role of the Government:* I. NAKAYAMA. *Some Notes on the Controversy Concerning Boeke's "Dualistic Theory": Implications for the Theory of Economic Development in Underdeveloped Countries:* Y. ITAGAKI. *Economic Development and Import Dependence in Japan:* K. KOJIMA. *The Logistic View Versus the National Income View of Foreign Trade Dependence, with Special Reference to Japan:* L. HOLLERMAN. *Growth and the Long Swing in the Japanese Economy:* M. SHINOHARA. *A Note on the Keynesian Unemployment:* K. ARA. *The Social Structure of Early Medieval Japan:* K. NAGAHARA.

Waseda Economic Papers

No. 5, 1961. *Scale and Profit Rate in the Banking Industry:* B. HORIKE. *The Relation of Cycles and Trends in Schumpeter's Model:* K. DATE. *The Realism of Marginal Analysis in Economic Theory:* E. SCHNEIDER.

L'Égypte Contemporaine

VOL. LII, No. 304, APRIL 1961. *Monetary Management:* A. R. ABDEL MEGUID. *Applications of Expectations Models to Crop Prices and Products in the Egyptian Province:* A. H. FAWZI EL ATTAR. *L'evolution du critère de la compétence de la juridiction administrative:* A. F. HASSAN. *Le principe du droit des peuples à disposer d'eux-mêmes:* H. KAMEL. *L'equilibre la théorie de l'equilibre global:* A. SABRY YASSIN.

Economic Bulletin of the National Bank of Egypt

VOL. XIV, No. 2, 1961. *Further Growth for the Public Sector. The Background of the New Budget Estimates. The XVIIIth Congress of the ICC. U.A.R. Budget Estimates 1961/62. The Egyptian Economy During the Fifties—II.*

Central Bank of Egypt Economic Review

VOL. 1, No. 1, 1961. (This Review issued by the Research Department of the Central Bank of Egypt, Cairo, deals with Economic Developments in the U.A.R. and abroad.) *Gold and the Dollar. Monetary Developments in the Egyptian Region in 1960. Agriculture and Industry in the Plan, Egyptian Region. Some Reflections on Cotton Situation and Policy. Banking Developments in U.A.R.*

Yugoslav Survey

VOL. II, No. 5, JUNE 1961. *Twentieth Anniversary of the Insurrection of the Yugoslav Peoples. The Peoples' Liberation War and the Socialist Revolution in Yugoslavia. Protection of the Person and Human Rights in Criminal Procedure. Relations between the Church and the State. Emigrants' Associations. Activity of Yugoslav League for Peace, Independence and Equality of Peoples in 1960–61. Yugoslav Economy 1945–60. The National Economy in 1960.*

Problems of Economics

VOL. III, No. 12, APRIL 1961. *Comparison of Soviet and U.S. Levels of Agricultural Output:* A. PAVLOV and V. SOBAKINSKIKH. *Socialism Will Win in Peaceful Economic Competition with Capitalism:* A. ALEKSEEV and V. KUVARIN. *Supply and Demand for Goods in a Socialist Society:* K. SKOVORODA. *The Development of the Gas Industry and the Use of Gas in the U.S.S.R.:* L. SMYSHLIAEVA. *The Socialist Division of Labor in the Fuel and Power Branches of Industry:* A. VIONOV and I. SEMENOV. *Some Problems of Complete Electrification in the U.S.S.R.:* M. VILENSKII. *Soviet Equipment on the Markets of Underdeveloped Countries:* V. BALASHOV and A. SHCHEGOLEV.

VOL. IV, No. 1, MAY 1961. Special issue on Soviet Agriculture. *Labor Productivity in Agriculture in the U.S.S.R. and the U.S.A.:* B. BRAGINSKII and D. DUMNOV. *Relative Indices of Growth in Soviet Industry and Agriculture:* N. LAGUTIN. *Some Questions of Narrowing the Difference Between the Two Forms of Socialist Property:* M. KOLGANOV. *On the Introduction of Scientifically-based Systems of Agriculture:* L. ZAL'TSMAN. *The Index Method of Linear Programming and Some Problems in Organizing Farm Production:* I. M. SYROEZHIN. *Methodology for Determining the Economic Effectiveness of Capital Investments in Agriculture:* K. EREMEEV and V. KHALTURIN. *Studying Family Budgets of Collective Farmers:* I. MATIUKA. *Differential Rent Under Socialism:* A. BOLGOV.

Vol. IV, No. 2, June 1961. *Problems of Methodology of National Income Calculations:* A. Zverev. *Some Problems of National Economic Planning at the Present Stage:* B. Miroshnichenko. *Further Improvement of Economic Planning Methods:* I. Maryukh and A. Fomin. *New Methodological Principles of Preparing the State Plan:* F. Kotov. *Development of Social Consumption Funds During the Period of Full-scale Communist Construction:* V. Komarov. *Problems of Equalizing the Levels of Economic Development of the Countries Forming the World Socialist System:* V. Zhamin.

Vol. IV, No. 3, July 1961. *Value and Price Under Socialism:* V. Nemchinov. *Price Formation, Investment Effectiveness and Profitability:* T. Khachaturov. *Value of Price of Production in the Socialist Economy:* A. Probst. *Differential Rent and the Problem of Prices of Collective Farm Products:* V. Boev. *Differential Ground Rent Under Socialism:* S. Strumilin.

Voprosy Ekonomiki (Russian text)

No. 5, 1961. *The Subjugation of the Cosmos and Soviet Science. A Major Source for Speeding the Schedule for Communist Construction:* A. Vorobeva. *On Rates of Growth and the Structure of Electricity Supply:* A. Stepankov. *Electrification and Technical Progress in Agriculture:* S. Shchurov. *Methodological Problems of National Economic Balance:* M. Bor and A. Notkin. *On the Long-term Development of the Collective-farm Form of Production:* S. Semin. *Questions of Strengthening Economic Links between Collective Farms:* V. Melnikov. *Forms of the International Division of Labour in the Socialist Camp:* I. Oleinik. *Economic Incentives for Work and Farms of the Transition to the Communist Method of Distribution:* E. Manevich. *The Circulation of the Productive Funds of a Socialist Enterprise:* P. Pavlov. *A Methodology for Calculating Differential Rent:* P. Malyshev. *Mass Forms of Education in Economics:* M. Belenov. *Questions of Evaluating the Degree of Specialisation in a Zone:* Sh. Rozenfeld. *In the Front Line of the Fight for Agricultural Progress:* A. Karavaev. *A Calculation of the Economic Efficiency of the Production and Use of Maize:* P. Pukhlyakov. *In the Institute of Economics of the Academy of Sciences of the U.S.S.R.:* K. Plotnikov and M. Kozelsky. *Problems of Improving Planning (Conference Report):* A. Zholkevich. *The Movement of Shock-workers of Communist Labour:* A. Gudym. *The Preparation of the Collective Study "Socialism and Communism." The Application of Mathematics to Economics:* M. Fedorovich. *Problems of Measuring Labour Productivity (Report of an E.C.E. Conference):* P. Bagrin.

No. 6, 1961. *Theoretical Problems of the Rational Location of Production:* V. Nemchinov. *Cost Accounting in Conditions of the Expanding Production of Communism:* N. Spiridonova. *The Concentration of Production and the Optimal Scale of Industrial Enterprises:* L. Itin. *On Forms of Material Incentives for the Work of Collective Farmers in Present-day Conditions:* I. Dmitrashko. *Technical Progress and the Economic Evaluation of Novel Agricultural Equipment:* M. Goryachkin. *Some Problems in Teaching the Political Economy of Socialism:* M. Atlas. *The Aid of Countries of the Socialist Camp—an Important Factor in the Independent National Development of Liberated Peoples:* V. Shchetinin. *On Recent Bourgeois Theories of "Economic Growth":* L. Alter. *Value and the Proportions in the Distribution of Surplus Labour:* M. Brzev. *Differential Land Rent in Collective Farm Production of the U.S.S.R.:* P. Bashkin. *In the Pages of* Ekonomicheskaya gazeta. *The Help of Scholars in Training Propagandists (in Economics):* V. Iskra and O. Pashkevich. *On the Improvement of Labour Conditions under Socialism:* A. Lyanin. *On the Question of the Methodology of Defining the Level of Living:* S. Partigul, V. Sobol and M. Eidelman. *The System of Replenishing the Indivisible Funds of Collective Farms Needs to be Improved:* S. Bylkov. *On the Analysis of Changes in Fixed-asset Composition on Collective Farms:* A. Karlov. *The Development of Links between Collective Farms in the Ukraine:* V. Goukov and V. Chaplitsky. *Some Questions of the Economics of Rural Electrification in the R.S.F.S.R.:* A. Melnikov. *In the Institute of Economics of the Ukrainian Academy of Sciences:* V. Kozak. *Economists to Agricultural Production:* V. Eslipov and A. Kharchenko. *The General Institute of Economics (Odessa):* M. Braslavets. *The E.C.E. Session on Industrial Statistics:* N. Grachev.

No. 7, 1961. *The Work of Economists—at the Level of Contemporary Demands. The Present Stage in the Economic Competition between the U.S.S.R. and the Main Capitalist Countries:* A. Notkin. *The Working Day and Communism:* A. Aganbegyan. *Some Theoretical Problems of the Material and Technical Basis of Communism:* S. Kheinman. *On the* Per Capita *Output of Agricultural Produce in the U.S.S.R.:* N. Vasilev. *An Important Economic Stimulus to the Progress of Stock-breeding:* E. Karnaukhova. *Necessary and Surplus Labour Under Socialism:* A. Agevnin. *Problems in Improving Industrial Management:* G. Gertsovich and R. Evstigneev. *The Victory of Socialist Productive Relations in Mongolia:* V. Titkov. *Bourgeois Theories of Preserving the Backwardness of Underdeveloped Countries:* N. Shmelev. *Is it Right*

to Deny the Existence of Differential Rent under Socialism?: M. KOVALEVA. *Capital Investment in Agriculture and Calculations of Its Efficiency:* G. RASKIN. *An Economic Conference of Scientists and Practical Workers in the Sphere of Agriculture:* A. EVDOKIMOV. *On Differentialising Purchase Prices of Produce by Zone:* E. TYAPKINA. *On the Introduction of Supplementary Payments to Labour:* D. MEKSIN. *The Co-ordination of Research into Economic Problems of the Further Development of the Collective-farm System:* O. MEEROVICH.

Planovoe Khozyaistvo (Russian text)

No. 5, 1961. *On the Agenda—Urgent Problems of Improving Planning (Results of a Scientific Conference). Improve the Indicators of the State Plan:* A. TOLKACHEV, L. ALTER, M. PETRUSHIN and B. GONCHARENKO. *Basic Problems in Planning the Integrated Development of an Economic Region. Contributions by Members of the Conference. Conference Recommendations. On Measuring the Efficiency of Capital Investments:* B. SMEKHOV. *The Economic Evaluation of the New Structure of Wholesale Prices in Hungary:* B. CZIKOS-NAGY. *The Co-operation of Socialist States in the Field of Transport:* T. LAZARENKO. *What Does Experience in Economic Analysis Teach?:* YU. ALYAKRINSKY. *The Improvement of Internal Factory Planning in Enterprises:* F. SABITOV. *On Raising the Role of Local Plan Organs:* A. ZENKOVICH.

No. 6, 1961. *Economic Links between Industry and Agriculture and the Further Progress of Agricultural Output:* G. GAPONENKO. *The Progress of the Economy and Culture of Soviet Kazakhstan:* T. TULEBAEV. *On Indicators of the Utilisation of Productive Fixed Assets. A Method of Evaluating Labour Productivity with Respect to Specialisation:* E. EFREMOVA and A. MUSIFULIN. *The Determination of the Efficiency of Capital Investment in Technically Novel Equipment:* L. KUZNETSOVA and N. YUREV. *Improve the Methodology of Determining the Recoupment Period:* I. BARATZ, M. LOGOVINSKY and YA. SHNEEROV. *Improve the Economic Indicators of Enterprise Operation:* G. SOTNIKOV. *Contributions to the Conference (convened by the Moscow City Sovnarkhoz on economic procedures in the enterprise). Strengthen Economic Links between Enterprises:* L. OBLOMSKAYA. *Simplify the Systems of Supply and Sales:* P. TSARKOV. *Successes of a Planned Economy in the World Socialist System in 1960:* A. NETRUSOV. *The Question of Crop Rotation Must be Solved Constructively:* V. CHACHIN. *The Use by Destination of Pechora Basin Coking Coal:* M. RABINOVICH.

No. 7, 1961. *The Organisation of Control and Better Conformity with the Plan. Improve the Co-ordination of the Economic Operations of Local Authorities with Sovnarkhozy:* YA. CHADAEV. *The Law of Value and Price in the Socialist Economy:* S. PERVUKHIN. *Questions of Improving the Territorial Organisation of the National Economy and Economic Zoning:* S. TOKAREV and P. ALAMPIEV. *Fundamental Problems of Specialisation and Integrated Development in the Central Asian Economic Zone:* N. NEKRASOV. *The Ploughing-up of Land in the Poless Depression—a Major National Economic Task:* T. KOVAL and A. TYULPANOV. *On Some Problems of the Polish Five-year Plan (1961–65):* S. JENDRYCHOWSKI. *On Improving Indicators of the State Plan:* N. MOSHKIN. *On a Single Indicator for Planning the Volume of Industrial Output and Labour Productivity:* M. ZEILIGER. *Internal Factory Accounting and Ways to Reduce Costs:* S. PROTSEROV. *On Forecasts of Energy Development in the U.S.A.:* N. GALOCHKIN. *It is Hoped that the Regulations (for Reporting Industrial Output) Can be Made More Precise:* M. TURYGIN. *On the Elaboration of a Draft Plan for 1962:* B. GLUSKER and M. POLNIKARPOV.

Finansy S.S.S.R. (Russian text)

No. 4, 1961. *The Control Work of Finance Agencies and the Construction Bank Must Be at the Level of New Tasks. Trade Discounts and the Strengthing of Cost Accounting:* G. GOFMAN. *Important Questions of Tax Collection:* D. BURMISTROV. *Effectively Use the Capital Outlays of Collective Farms:* L. BRAGINSKY. *Our Suggestions for Improving the Economic Work of Finance Agencies:* A. PROZOROV. *Unused Scope for the Growth of Personal Insurance:* I. DROZDKOV. *Why Some Enterprises of the Karelian Sovnarkhoz Are Making Losses:* M. ZHUKOV and E. LAVRETSOV. *Excess Stocks of Goods in Budget-financed Establishments:* E. VAINSHTEIN. *The Procedure for the Receipts and Expenditure of the Enterprise Fund:* N. GARETOVSKI. *The Distribution of the Accumulation of Government Enterprises in China:* N. OBOLENSKY. *A Plenum of the Central Committee of the Bank Officials' Trade Union:* V. MARETSEV. *A Local Meeting of Finance Officers in Moscow. For a Successful Fulfilment of the Revenue Plan. Our New Rouble.*

No. 5, 1961. *Fully Mobilise Reserves in Construction. A Wider Road for Rationalisers:* G. KUTUZOV. *The Budget and Its Role in Developing the Economy and Culture of Kazakhstan:* U. ATAMBAEV. *More Attention to Letters, Applications and Complaints:* V. LAKHOV. *More Thoroughly Investigate the Economy:* V. MURATKHODZHAEV. *On "Tolkachi" and Mission*

Expenses: V. IVANOV. *Profits as a Stimulus to Extend Output and Building up Incentive Funds:* P. ZHEVTYAK. *Sources for the Financing, and the Efficiency of, Modernising Fixed Assets:* A. SIDOROV. *Once Again on Indicators of the Cost of Industrial Products:* K. KNYAZEV and R. NOVIKOV. *Economic Work is Everyone's Job:* N. GORYACHEV. *The Distribution and Use of Profits in Enterprises of Local Industry:* S. KHEIFETS. *Some Problems in the Study of the Balance of Payments of Capitalist Countries:* S. BORISOV. *Meetings Devoted to the Improvement of the Economic Work of Finance Agencies. In the Central Commission of the Ministry of Finance of the U.S.S.R. for Rationalisers' Suggestions and Inventions.*

No. 6, 1961. *Towards the XXII Congress of the Communist Party—Towards a Worthy Meeting:* V. GARBUZOV. *For a Higher Level of Economic Operations by Finance Agencies:* P. ROGOZINSKY et al. *The Budget in the Service of the Economic and Cultural Construction of the Georgian S.S.R.:* B. CHKHEIDZE. *Problems of Material–Technical Supply:* N. GALPERIN. *Analysis of Annual Reports Has Helped to Reveal Reserves:* I. BELOBZHETSKY and N. ZAEVSKAYA. *What Our Trip to Moscow Gave Us:* A. LITVAT. *Unsolved Problems:* R. BADEN. *Initiative and Efficiency:* M. ROZE. *The Formation and Use of the Consumer-good Fund:* S. VORONTSOV. *Ensure a Correct Fulfilment of the U.S.S.R. Budget (A Group Meeting of Finance Officials). Improve Finance Work in the Economy:* E. UTKIN.

Dengi i Kredit (Russian text)

No. 1, 1961. *The New Rouble in Action. On an Incorrect Theory of Value, Money and Prices under Socialism:* V. BATYREV. *Seasonality in Agriculture Production and the Financial Tasks of Collective Farms:* Z. KATSENELENBAUM. *Changes in the Organisation of Non-cash Settlements:* M. GHIDIN and S. GRIGOROVA. *Strengthen State Bank Control over Expenditure on Capital Repairs:* N. RAZUMOVSKY. *On Improving Credit Coverage for the Production Outlays of Collective Farms:* V. SMIRNOV. *Some Questions of the Analysis of the Financial and Economic Activity of Industrial Groups:* S. BARNGOLTS. *On the Question of the Devaluation of the U.S. Dollar:* V. DROZDOV. *On Extending the Activities of the Foreign Trade Bank of the U.S.S.R. and the Re-organisation of the Administration for Foreign Operations of the State Bank. A Meeting of State Bank Departmental Heads and Directors of Technical Colleges of Accountancy.*

No. 2, 1961. *The Third Year of the Seven-year Plan and the Tasks of the State Bank. The New Money Has Gone into Circulation. For a Further Improvement of Personnel Work in the State Bank:* I. KAZAKOV. *The New Statute of the State Bank:* N. VASNEV, M. KOGAN and P. YAKOVLEV. *The Strengthening of the Economies of Collective Farms and State Bank Credits:* S. NOSYREV. *Changes in the Procedure for Encashments:* N. BYKHOV. *Repayment Terms in the Credit System for Trade Agencies:* V. ZAITSENVARG. *On the Socialist Reorganisation of the Credit System in Czechoslovakia:* A. DOSTAL. *State Bank Credits Permit the Development of the Cinema Network:* G. KOVALENKO. *Strengthen Bank Control over State Farm Construction:* N. VERKHNIKOV. *On Control Over Wage Payments:* N. DUDIN.

No. 3, 1961. *The Tasks of the State Bank in Connexion with the Resolutions of the January Plenum of the Party Central Committee:* V. USHAKOV. *The Velocity of Circulation of Funds as a General Indicator of the Efficiency of Capital Investment in New Equipment:* P. PARFANYAK. *Credit Supply to Industrial Enterprises for New Equipment:* Z. ZUEVA and K. GIOEVA. *More Attention Should Be Paid to Staff Training:* V. KARASIK. *The Extension of the Use of Drafts from Limited-sum Cheque-books:* S. GUROVICH. *The Role of the Inspectorate in Improving the Work of the State Bank:* N. GANDARINA. *Develop the Work of Rationalisers:* S. PLATONOV. *The Work of the Engineering Control in the Supply of Funds and Credits for Building and Repair:* V. DYSKIN. *The Holding Company—a Weapon of Monopoly Control in U.S. Banking:* V. USOSKIN.

No. 4, 1961. *Meet the XXII Congress. The New Rouble in Circulation:* A. KHRYNIN. *For Every Enterprise to Work at a Profit:* M. PESSEL. *The Role of Bank Interest in Strengthening Cost Accounting:* SH. SVERDYAK. *The Utilisation of Working Capital in Socialist Industry:* I. USATOV. *On Manoeuverability with Working Capital:* F. KAMEGULOVA and R. KORNEEVA. *Credits for Expanding Production of Consumers' Goods and Services:* E. RETYUNSKAYA. *On the Forms and Objects of Short-term Credit:* N. INOZEMTSEVA. *The Use of Bank Credit for Financing New Installations in Bulgaria:* I. IVANOV. *Consumer Credit in the Popular Democracies:* M. BURLAKOV. *The New Credit Regulations Have Proved Themselves:* M. ANDRONOV. *Credit to Co-operatives for Procurement Operations:* N. CHUB. *Centralise the Money Transactions for the Enterprises of a Sovnarkhoz:* M. ZALESSKY and B. GOROKHOVSKY. *The Credit System of the Federal German Republic as a Weapon of State Monopoly Capitalism:* V. SHENAEV.

No. 5, 1961. *Vigorously Activate the Progress of Agriculture. On the Further Development of Trade–Money Relations:* M. TAVARCHENKO. *On Direct Settlements in the Economy:* M.

KAZAKETOV and I. TAFLYA. *Some Problems of the State Foreign-exchange Monopoly in the U.S.S.R.:* I. AIZENBERG. *On the Sources for Creating Working Capital in Economic Enterprises. For a Strengthening of Cost Accounting, the Economic Operation and Finance of Collective and State Farms:* A. ROGULIN. *Cash Accounting Machines:* M. KOZHEVNIKOV. *Staff Training and Checking—the Guarantee of Successful Work:* A. BALASHOV. *Credits to Industrial Enterprise to Cover Inventories. The Tasks of the State Bank during the Seven-year Plan:* S. MEKHANIK.

Vestnik Statistiki (Russian text)

No. 5, 1961. *A Great Social Achievement:* A. KAZANSKY and A. ULYANOVA. *The Statistical Measurement of the Quality of Production:* V. SISKOV. *On the System of Data Processing in Various Countries:* F. EGERMAIER. *The Displacement of Small-scale by Large-scale Output in U.S. Agriculture:* V. ZAITSEV. *On Measuring the Standard of Labour Mechanisation in the Light of Productivity:* N. KAMINSKY and YA. KVASHA. *Methods for Revaluing the Fixed Assets of Collective Farms and Organisations Run Jointly by Collective Farms:* M. FREIDLIN (Buildings) and N. DANILOV (Equipment). *Some Suggestions for the Further Improvement of the Work of Statistical Agencies:* V. SHYUTIN. *On the Revaluation of Collective-farm Assets in Estonia:* M. SIROTKIN. *Systematically Help Book-keeping Staffs in Collective and State Farms and Industrial Enterprises:* M. ISAICHENKO. *On the Raion Passport:* N. LITVINOV. *Statistical Books to be Published in 1961–65:* E. MASHIKHIN.

No. 6, 1961. *The Degree of the Presidium of the U.S.S.R. Supreme Soviet on Responsibility for Writing Up or Otherwise Distorting Reports on Plan Fulfilment. Truthfulness and High Principle Above All. The National Analysis of Consumer Demand:* S. PARTIGUL. *Correctly Compute Farm-members' Labour in the Cost of Collective-farm Production:* A. SILIN. *On the Methodology for Analysing the Components Influencing Engineering Productivity:* YA. GERCHUK and L. MINTS. *Be Supported by the Help of the Community in Improving Accounts and Reports:* K. PODLUTSKY. *On Grouping Household Budgets by Income Bracket:* S. POSTNIKOV. *The Determination of Wear and Tear in the Fixed Assets of Collective Farms:* V. GORELIK. *On the Revaluation of Collective-farm Assets:* A. KOCHNEV. *On the Numbers of Administrative-accounting Staffs of Collective Farms:* I. RAMAEV. *Improve Accounts of Industrial Costs:* N. CHUIKO. *Put Order into the Accounts of the Timber Fund:* F. LYASHENKO. *On Operational Accounts in Agriculture. On a Simplification of Telegraphic Reporting. A Meeting of the Heads of Union-Republican Statistical Administrations:* S. K. *A Republican Meeting on Accounts and Reports in Tadzhikistan:* M. P. *A Meeting of Officials of Belorussian Statistical Offices:* K. B. *A Seminar on Mechanised Accounting:* YA. EZRUBELSKY. *In the Statistical Section of the Moscow Scientists' Centre:* YU. K.

Ekonomista (Polish text, English and Russian summaries)

No. 2, 1961. *Structural Changes in Contemporary Capitalism:* J. ZAWADZKI. *Unit Costs and Price Setting of Agricultural Products:* M. POHORILLE. *On the Question of Control Prices of Industrial Crops:* L. MIASTKOWSKY. *Industrialisation, Technical Progress and the Intensification of Agriculture:* J. OKUNIEWSKI. *Remarks on the Theory of Economic Dynamics of R. F. Harrod:* A. EUKASIEWICZ. *The Generalisation of Marginal Analysis:* S. WELLISZ. *Remarks on the So-called Generalisation of Marginal Analysis:* B. MINC. *On the Theory of Marginal Costs:* J. LIPINSKI. *Problems of the Communist Principle of Distribution According to Marx:* G. TEMKIN. *Problems of Economic Development in India:* I. SACHS. *Anti-trust Policy in the U.S.A. since World War II:* R. KUDLINSKI. *Problems of the Credit Market in Post-war France:* J. RUTKOWSKI.

Folia Oeconomica Cracoviensia (New Journal, Polish text, English and Russian summaries)

VOL. I, No. 2, 1961. *The Cost of Living in Cracow in 1945–58:* S. BORKACKI. *The Income Formula and the Exchange Equation:* J. CZARKOWSKI. *The Problem of Leisure after Work:* W. KRZYŻANOWSKI. *An Introduction to the Study of the Problems of Underdeveloped Countries:* B. OYRZANOWSKI.

VOL. I, No. 3. *Some Problems Connected with Taxation in Western-European Integration Arrangements:* A. KOSTECKI. *The Paradoxical Working of the Quantity of Money: A Contribution to the Theory of the Exchange Equation:* F. MLYNARSKI. *The Measurement of the Standard of Living:* J. POPIEL.

Gospodarka Planowa (Polish text)

No. 4, 1961. *The Newly-elected National Councils Face the New Investment Tasks for 1961–65:* Z. JANUSZKO. *The Complex Analysis of the Efficiency of Foreign Trade—I:* W. TRZECIAKOWSKI. *The Efficiency of New Steel Smelting Processes:* S. KAWIŃSKI and M. RAKOWSKI. *The Efficiency*

of Road and Rail Transport Compared: C. Mihalski. *Extra-European Schemes of Economic Integration and Their Impact on International Trade:* L. Jankowiak. *Linear Programming Applied to the Determination of a Rational Transportation Scheme for Building Materials:* I. Nykowski. *On Phase and Full Profitability:* J. Gordon. *Prospects for the Development and Problems of Activating Bialystok Voivodship:* E. Bakun. *The Development of Food Processing in Olsztyn Voivodship:* J. Pleban. *The Soviet Unions' Problem of Ensuring a More Rapid Growth of Agricultural Output than of Demand for That Production:* W. Mishina. *A Tentative Comparison of Agricultural Production in Poland with That of Some Other European Countries:* W. Krasicki. *The Need to Widen and More Deeply Analyse the Agricultural Census:* H. Skrobisz.

No. 5, 1961. *Mathematics and Electronics in the Service of Planning:* V. Nemchinov. *Changes in the Methodology of Drafting the 1960 Economic Plan:* E. Szymański and M. Wolski. *On the Need to Draft Annual Plans in Two Phases:* W. Rux. *Current Tasks of Regional Planning:* J. Zaremba. *The Complex Analysis of the Efficiency of Foreign Trade—II:* W. Trzeciakowski. *Criterion of Efficiency and Planning Foreign Trade:* W. Piaszczyński. *Integration Processes in Western Europe and Their Impact on Poland's External Trade:* B. Łączkowski. *The Member Countries of OMEA Enter a New Stage of Economic Development:* A. Bodnar. *Changed Methods of Planning Cash Flows and Regulating Money Circulation in Socialist Countries:* A. Zwass. *Progress in North Korea's Industrialisation. Linear Programming Applied to Planning Freight Transport:* J. Buga and M. Jerczyńska.

No. 6, 1961. *The Reconstruction and Modernisation of Transportation over the 1961–65 Period:* J. Popielas. *The Evolution of Agricultural Output during 1961–65:* J. Okuniewski. *Major Trends of Technical Advance in Agriculture for 1961–65:* A. Leopold and J. Zaleski. *For Rational and Effective Use of the Rival Development Fund:* A. Szynkarczuk. *The Indicator of Labour Productivity and the Economy of Materials:* T. Moskalewski. *The Maximum Exchange Rate Coefficient and the Real Limit Coefficient:* J. Jurkiewicz. *Capital Investment in Housing during 1955–60:* T. Przeciszewski. *The Yugoslav Five-year Plan 1961–65: On some Contradictions Inherent in the Yugoslav Economic Model:* J. Zagórski. *Bank Control of the Wage Fund in Socialist Countries:* A. Zwass. *Long-term Development in the Putavy Region:* J. Podja. *Some Problems of Agriculture in the Central and Southern Voivodships:* S. Markowski. *The Present State of Small Towns and Industry's Part in Their Activation:* S. Król.

Politická Ekonomie (Czech text, English and Russian summaries)

No. 4, 1961. *The Main Features of and the Conditions for Technological Revolution:* F. Kutta. *The Influence of Social Care for Children on Income Differentiation in Families:* V. Sova. *On the Question of Utility Value:* J. Císař. *Some Questions of Differential Rent under Socialism:* K. Kočí. *Methods of Linear Programming and Their Practical Application. Transport Problems and Linear Programming:* V. Kadlec. *Remarks on the Fundamental Basis for Economic Research:* L. Gatovsky and M. Sakov.

No. 5, 1961. *On the 40th Anniversary of the Communist Party of Czechoslovakia. On the Economic Connotation of the Efficiency Coefficient for Investment:* L. Řiha. *Against a Mechanical Application of Standards for the Employment of Skilled Personnel in Management Staffs of Industrial Enterprises:* M. Borák. *Differential Rent under Socialism:* J. Bača. *On the Approximation Index Method:* V. Kadlec and L. Vodáček. *On the Use of Mathematics in Economics:* A. Boyarsky. *The E.C.E. Conference of the Measurement of Labour Productivity:* Z. Tlustý.

No. 6, 1961. *On Ownership and Economic Relations:* M. Křížek. *The Theory of the Managed Economy of the Czechoslovak Social Democrats:* M. Šmejkal. *The Simplex Method:* V. Kadlec and L. Vodáček. *The Balance of Inter-industry Relations in Poland and Hungary:* J. Skolka and Z. Tlustý. *Analysis of Inter-industry Relations in the Soviet Union:* J. Bouška. *The Italian Economy since the Second World War:* V. Svoboda. *An International Conference on Disarmament in Kiel:* L. Urban. *A Report on the International Conference on Neo-colonialism in Liepzig:* J. Seregny. *The Liepzig Fair as Evidence of the Economic Progress in the German Democratic Republic:* V. Halaxa.

Plánované Hospodářství (Czech text)

No. 6, 1961. *Metal Consumption in Industry:* V. Dvořák. *Lowering Investment Costs and Shortening Power-plant and Grid Construction Schedules:* M. Šafránek. *Applying New Techniques in Industrial Construction:* J. Maštovský. *Problems of Large-scale Farm Output in the Long-term Plan:* R. Ruffer. *Problems of Retail-price Planning:* V. Janza. *Ensuring a Sufficient Fodder Base:* O. Štěpánek. *Problems Concerning the Relations within the Process of Investment Construction:* K. Perlík. *Arrangements for Project Elaboration in Industrial Con-*

struction: B. Skála. *Experience with the Introduction of Shorter Work Time:* V. Hanzelík. *Raising Economic Efficiency in Engineering:* J. Formánek. *The Premium System for Improving the Quality of Foods Stuffs:* J. Zelenka.

No. 7, 1961. *The Concentration of Engineering Production:* J. Karel. *The Building of the Socialist Village:* Z. Valeník. *Raising the Fertility of Farm Land:* J. Boudev. *Preparation of 1962 Plans by National Committees:* R. Duben. *The Significance of Planning Social Consumption:* I. Cima. *Project Elaboration in Construction:* J. Havlas and Z. Plachek. *Rules and Work in Designing Industrial Plant:* K. Česlavsky. *On Relationships in Capital Construction:* J. Helan. *Review of the Shortening of Work Time in Metallurgy:* J. Urban. *Securing Engineering Products for House Construction:* R. Trča. *The Economic Efficiency of Investment:* V. Lokvenc. *Raising the Level of the Agricultural Plan:* J. Chmela. *Economic Problems of Capital Construction in Czechoslovakia:* J. Vintera.

Ikonomicheska Misl (Bulgarian text, French and Russian summaries)

No. 1, 1961. *Engels and Marxist Economics:* D. Kekhaiov. *The Disintegration of the Imperialist Colonisation System:* I. Maier. *Profit Plans as a General Industrial Indicator:* G. Petrov. *Direct Taxation under Socialism:* I. Katincharov. *The Thoughts of Botev on Certain Economic Problems:* K. Gorov. *The Development of Collective Farming in Hungary:* E. Chizmadia. *Economic Problems of Early-tomato Growing in Our Country:* D. Ivanov. *A Conference on the Problems of Production Relationships in Industry:* A. Dimov.

No. 2, 1961. *The Problems of War and Peace:* Ya. Atanasov. *Some Problems in the Establishment and Use of Economic Balances in Planning:* G. Zhelev. *Technical Progress and the Training of Highly-qualified Technicians:* M. Avikhai. *Some Economic Problems of Warehousing in Our Country:* M. Konev. *Competition for Latin American Markets:* V. Sestrimski. *Material-technical Supply and Production Reserves in Construction:* L. Donchev. *Agricultural Development in the Democratic Republic of Vietnam:* V. Vassiltsov. *A Conference on Trends in Specialisation and Co-operation in Our Engineering:* Yu. Patsova.

No. 3, 1961. *Effective Measures for the Further Development of Agriculture. On the International Comparison of Labour Productivity:* I. Khadzhiivanov. *On Material Incentives in Introducing New Techniques:* I. Iliev. *Problems of Production Relations in Joint Projects of Co-operatives:* K. Kiryakov. *Workers' Leisure under Socialism:* Z. Staikov. *American Aid to Greece:* S. Pavlidis. *On an Inquiry into Industrial Automation:* A. Mashiakh. *A National Conference on Automation:* K. Kirova. *Success and Prospects for Economics in the German Democratic Republic:* G. Manz.

No. 4, 1961. *On Certain Theoretical Methodological Problems of the Index of Real Levels of Living:* V. Nikoforov. *Technical Advance and the Progressive Use of Chemicals in the Economy:* B. Benev and D. Levi. *The Profitability of Tobacco-growing in Our Country:* M. Maksimova. *The Allocation of Non-seasonal Credits to Enterprises on the Basis of Their Turnover:* M. Yanchulev. *A Consideration of Recent Developments in the Capitalist Bullion Market:* D. Popov. *On the Content of the Category of Productive Forces:* I. Kostov. *The Application of Mathematical Methods to Economic Research and Planning:* V. Ivanova. *Oil and the Foreign Oil Monopolies in the Near and Middle East:* E. Malkhasyan. *The Economic Situation in Iran:* M. Kamali.

Planovo Stopanstvo i Statistika (Bulgarian text)

No. 3, 1961. *Planned Economic Development—the Law of the Socialist World System:* N. Vulev. *Railway Electrification—a Major Factor in Improving the Country's Energy Balance:* Kn. Kotsev. *The Role of Money Advances in the Dividends of Co-operative Farms:* O. Petrova and N. Misheva. *On the Planning of Real Incomes:* G. Zhelev. *On the Accuracy of Bulgarian Statistics before September 1944:* L. Berov. *Careful Economies—an Instrument of the Socialist Economy:* V. Pereslegin. *On the Statistical Analysis of Seasonal Variations:* N. Naumov.

No. 4, 1961. *The Improvement of Agricultural Planning—an Important Factor in the Rapid Expansion of Farm Output:* S. Syulemezov. *On the Long-term Development of the Paper and Cellulose Industry:* P. Neikov and D. Minchev. *The Co-ordination of the Plans for Cost and for Material-Technical Supply:* S. Kalinov and I. Yordanov. *Some Questions of the Indexes of Costs and Profit in Road Haulage:* L. Dimitrov. *On Computing Gross Production, Material Outlays and Net Production in Agriculture:* V. Vutov and I. Dochev. *The Decisions of the XIV Session of CMEA—a New Contribution to the Consolidation of Socialist Economic Collaboration:* G. Peeva.

Ekonomski Pregled (*Serbo-Croat text, English summary*)

No. 2, 1961. *On the Keynesian Theory of Economic Development:* J. Sirotković. *The Increment in the Stock of Fixed Assets in the Island of Korčula from 1947 to 1960:* I. Vinski. *Production and Consumption of Eggs and Poultry in the West European Market:* D. Ruhjr. *The History of Economic Thought on Location:* I. Krelić. *Agricultural Policy in the European Common Market:* M. Ružyč.

No. 3, 1961. *The Capital Coefficient, Technical Progress and the Theory of the Threshold of Economic Development:* R. Bicanić. *An Estimate of the Scope for Economic Development in the Bjelovar District:* A. Gabričević and O. Židek. *The Treatment of Natural Conditions in Economic Geography:* S. Vojnović. *The All Union Conference on Town Planning in the U.S.S.R.:* B. Petrović. *The Production and Use of Chemicals in Italy and World Demand:* M. V. *A Bibliography on the Theory of Accumulation:* S. Jovanović.

Közgazdasági Szemle (*Hungarian text, English and Russian summaries*)

No. 4, 1961. *Some Questions of Our Economic Policy:* I. Friss. *A New Stage in the Development of the Socialist World System:* A. Loshchakov. *The Main Trends in the Development of Iron and Steel Production during the Second Five-year Plan:* R. Mosóczy. *Calculations of the Economic Efficiency of Industrial Investments:* L. Lukács. *The Optional Exploitation for the National Economy of the Capacities of State Farms:* S. Korátsy. *The Cause of Chronic Inflation in the Main Capitalist Countries:* T. Bácskai. *The Problem of Our Foreign Trade in Oil:* T. Sattler. *Value and Price under Socialism:* Zs. Ezer. *The European Common Market and East–West Trade:* G. Biró. *A Summary of the Economists' Discussion at the Institute of World Economy of Kiel University. A Comment on Polgár and Fall's Paper on the Productivity of Retail Trade by Peasants' Co-operatives:* L. Horinka.

No. 5, 1961. *The Agricultural Manpower Situation During the Second Five-year Plan:* Gy. Pekete and J. Timár. *The Main Features of the Keynesian Theory of Employment and Reproduction:* L. Szamuely. *From the Labour Unit to the Monetary Remuneration of Labour:* E. Csizmadia. *The Determination of the Optimal Investment Plan of an Industrial Sector by Linear Programming:* J. Kornai. *The Crisis of the American Dollar and the Position of the West German Mark:* I. Weisel. *The Development of the Standard of Living in the Two German States:* G. Manz. *Can the U.S. Economy Develop More Rapidly?:* D. Sóky. *A Discussion on the Specialisation and Location of Agricultural Production:* F. Vági.

No. 6, 1961. *State Support for Co-operative Farms:* K. Szunyogh. *A New Period in the General Crisis of Capitalism:* A. Arzumanyan. *Some Problems of the Development and Present Situation of Regional Planning:* L. Kösegi. *Input–Output Sub-tables and Their Combined Use:* Gy. Simon and Gy. Kondor. *Modern Bourgeois Theories on Exchange Rates:* K. Kövér. *Prices in the Socialist World Market:* D. Sóky. *Differential Land Rent in Socialist Agriculture:* J. Szabó and L. Daneó. *The Economic Aspects of Western German Neo-colonialism:* S. B. *The 1961 Scientific Conference on the Chemicals Industry:* I. László and J. Rácz.

No. 7, 1961. *The General Manpower Situation During the Second Five-year Plan:* L. Berettyán and J. Timár. *A Planning System to Take Account of the Phasing of Plan Objectives:* I. Varga. *The Part Played by Price Ratios in Controlling Farm Output:* J. Laszló. *Some Problems of the Organisation and Economics of Scientific Research:* S. Balázsy and Gy. Varga. *Theories of Growth in Modern Bourgeois Economics:* A. Mátyás. *A Comparison of Industrial Productivity in Czechoslovakia and Hungary:* Z. Román. *Some Problems in the Development of Co-operative Industry:* T. Ferenczi. *A Session of the Scientific Council for Home Trade:* L. Sz.

Probleme Economice (*Rumanian text, English, French and Russian summaries*)

No. 1, 1961. *Peaceful Co-existence—the Vital Necessity of Our Time:* Gh. Neipeanu. *The General Crisis of Capitalism at a New Stage:* Gh. Dolgu. *The 1961 State Budget—a Budget of Economic Development and Workers' Welfare:* I. Craiu. *Collective Farms on the Way of Many-sided Development:* C. Cojocaru. *The Economising of Materials—a Characteristic of the Socialist Economy:* M. Năstase. *Scope for the Economising of Metals:* D. Lazăr. *The Rational Management of Energy Resources:* G. Sterian. *The Economy of Timber Utilisation in Industry:* A. Harap. *The Reduction of Specific Outlays of Raw Materials in Light Industry:* M. Iarovici and T. Grecu.

No. 2, 1961. *The Militant Character of Progressive Social and Economic Publications in Bourgeois-Landlord Rumania:* N. Marcu. *Economic Relations between Socialist Countries—the Expression of their National and International Interests:* F. Duca and T. Coşcodan. *A Rapid Rate of*

Economic Development Is a Law of Socialism: E. Dobrescu. *The Rational Use of the Park of Tractors and Agricultural Equipment in M.T.S.:* P. Malamen. *On the Falsity of the Bourgeois and Revisionist Theories on Wages under Capitalism:* S. Zeigher. *Aspects of Material Incentives in the Contract System:* I. Ionescu. *Criticism of the Theory of Comparative Costs in Connection with the Problems of the Under-developed Countries:* I. Anghel. *The Increase in the Coefficient of Utilisation of Weaving Looms in the Cotton Industry:* R. Nicolae. *The Economic Importance of Utilising Pastures and Natural Hayfields on State Farms:* Gh. Ioniță and E. Popescu.

No. 3, 1961. *The Improvement of the Quality of Industrial Products:* E. Drăfănescu. *The Impoverishment of the Working Class in Rumania between the Wars:* V. Axenciuc. *The New Stage of Development of the Socialist World System:* I. Zaharia. *The Rational Use of Production Reserves in Industry:* S. Gheorghiu. *The "Peasant State" Theory—and Ideological Diversion of the Bourgeoisie and Landlords:* Z. Ornea. *Militarisation and Its Consequences for Economic Life in the U.S.A.:* V. Perlo. *Some Internal Reserves for Adding to Financial Accumulation in the Sugar Industry:* Gh. Rădoacă. *The Creative Initiative of the Masses and Technical Progress:* I. Lupu.

No. 4, 1961. *The Leninist Policy of the Rumanian Workers' Party for Building a Socialist Economy:* V. Malinschi. *Raising the Peoples' Welfare—the Aim of the Party's Policy:* M. Mănescu. *Aspects of the Creation and Development of the Technical and Material Base of Socialism:* I. Rachmuth. *The Rumanian People's Republic on the Way of Transformation into an Industrially Developed Country:* M. Părăluță. *Economic Development in the Formerly Backward Regions:* R. Moldovan. *The Party's Leadership in the Planned Development of the Economy:* V. Rausser. *Utilisation of the Principle of Material Incentives in Socialist Construction:* S. Zeigher. *Classes and Class Structure at the Present Stage:* I. Adam. *The Elimination of the Opposition between Town and Country during the Years of People's Power:* F. Duca. *The Struggle of the Communist Party of Rumania against the Country's Subordination to Foreign Capital:* M. Lupu.

No. 5, 1961. *The Rumanian Workers' Party Struggle for Creating and Reinforcing the Alliance Between the Working Class and the Working Peasantry:* V. Malinschi. *The Continual Raising of the Technical Level of Engineering:* C. Burdescu. *Expanded Socialist Reproduction in Agriculture:* L. Gutescu. *Local Budgets—a Powerful Instrument of Socialist Construction:* M. Popovici. *Economic Competition between the Two World Systems in the Field of Living Standards:* E. Bibiri. *The Anti-scientific Character of Contemporary Bourgeois Views of the History of Economic Thought:* A. Popper. *The Development of Industrial Production in the Socialist Countries of Europe in 1960:* I. Lemnij. *Aspects of the Scientific Session of the Institute for Agricultural Research:* T. Lazăr. *The Application of Mathematics to Economic Research.*

Ekonomia Popullore (Albanian text)

No. 2, 1961. *The IV Congress of the Albanian Workers' Party Has Approved an Immense Programme of Economic Development. The Directives of the IV Party Congress on the Third Five-year Plan. The Third Five-year Plan—A Major Step in the Building of the Material–Technical Base of Socialism:* S. Koleka. *The Solution of the Bottleneck in Skills as the Fundamental Task in Successfully Fulfilling the Plan:* K. Theodori. *On Finance and Economising:* A. Veru. *The Rapid Expansion of Grain Production—an Essential Task for Agriculture in the Third Five-year Plan:* P. Dode. *The Development, Prospects and Some Problems in the Manufacture of Spare Parts:* H. Nishku and Th. Apezolli. *Towards a More Correct Calculation and Planning of Labour Productivity in Mining:* J. Drishti. *A Review of the Economic Situation of Greece:* A. Pano and I. Telo. *The Destruction of the Colonial System Since the Second World War.*

No. 3, 1961. *The Communiqué on the Sino-Albanian Economic Negotiations. Exceptionally Important Assistance Accorded in the Spirit of Proletarian Internationalism. On the Mobilisation and Rational Use of Material and Financial Funds:* M. Gjoni. *At Tirana Enterprises Much Scope Has Been Found to Make Economies:* K. Skenderi and P. Bollano. *Berat District Workers Economise:* K. Konomi. *Oil and Its Development During the Third Five-year Plan:* S. Pasho. *The Rational Use of Manpower—a Major Reserve for the Economic and Organisational Strengthening of Co-operative Farms:* S. Papa. *On the Allocation of Credits to Industrial Enterprise:* A. Haxhi. *The Classification of Lorries by Differences in the Monthly Standards of Their Drivers:* G. Mara. *On the Economic and Material–Technical Basis of Socialism and the Principle Indexes which Characterise the Transformation of a Country into an Industrial–Agrarian Economy:* V. Misja.

NEW BOOKS

British

ALLEN (G. C.). The Structure of Industry in Britain. London: Longmans, 1961. 7½". Pp. 236. 12*s.* 6*d.*

[To be reviewed.]

BARONESS WOOTTON OF ABINGER. Remuneration in a Welfare State. Liverpool: The University Press, 1961. 8½". Pp. 17. 3*s.* 6*d.*

[Lady Wootton is concerned with the pattern of pay differentials between social classes and professions. She detects a remarkable ossification of differentials since the war, and attributes this in part to the mechanism of collective bargaining whereby the structure of the past is consciously imitated and preserved. She welcomes the attempts of the Guillebaud Committee and others to think afresh about the proper principles of relative pay, but recognises the considerable difficulties implicit in such work. Finally, she applies this sceptical analysis to conventional assessments of what the poor or disabled "should" be paid by the State.]

BURN (D.). The Steel Industry 1939–59. London: Cambridge University Press, 1961. 9". Pp. xvi + 727. 80*s.*

[To be reviewed.]

CONAN (A. R.). The Rationale of the Sterling Area. London: Macmillan & Co., 1961. 9". Pp. 133. 21*s.*

[To be reviewed.]

DEVONS (E.). Essays in Economics. London: Allen & Unwin, 1961. 8½". Pp. 203. 25*s.*

[To be reviewed.]

EATON (J.). Socialism in the Nuclear Age. London: Lawrence & Wishart, 1961. 7½". Pp. 191. 15*s.*

[This is a well-reasoned statement, by a competent Marxist economist, of the economic case for socialism in Britain. This will seem to many a difficult case to establish, and the greater part of the book is negative in the sense that it is devoted to a critique of the working of the present system of managed capitalism, and a discussion of its limitations. The approach is informed and flexible, though partisan, but is unlikely to convince those not already predisposed towards "public social ownership of the means of production." The final chapter deals with some of the economic problems which might arise in a socialist Britain. The treatment of such issues as bureaucracy, incentives and worker's participation in management is interesting but excessively abstract. If Marxists seriously wish to suggest an alternative to the present system they should surely, by now, be able to offer for discussion far more specific plans for dealing with these and other problems.]

EINZIG (P.). A Dynamic Theory of Forward Exchange. London: Macmillan & Co. (New York: St. Martin's Press), 1961. 9½". Pp. xxvi + 573. 60*s.*

[To be reviewed.]

FISHER (F. J.). (Ed.). Essays in the Economic and Social History of Tudor and Stuart England. In Honour of R. H. Tawney. London: Cambridge University Press, 1961. 8½". Pp. 233. 30*s.*

[To be reviewed.]

FOGARTY (M.). The Just Wage. London: Geoffrey Chapman (Abford House, Wilton Road, S.W.1), 1961. 9". Pp. 309. 30*s.*

[To be reviewed.]

FRANK (I.). The European Common Market. An analysis of commercial policy. London: Stevens, 1961. 8½". Pp. 324. 50*s.*

[To be reviewed.]

FRIDAY (F. A.). Shops and Prices. Inquiry into Resale Price Maintenance. London: Pitman, 1961. 7½". Pp. 46. 5*s*.

[This pamphlet is a polemical defence of resale price maintenance against its critics. It contains a brief review of the controversy and a reply to some recent discussion.]

GADGIL (D. R.). Planning and Economic Policy in India. London and Bombay: Asia Publishing House, 1961. 9½". Pp. xvii + 199. 30*s*.

[The author is one of India's most eminent economists, influential in the shaping of his country's economic policy. The student of India's recent economic history will, therefore, find great interest in this publication of his notes and memoranda, written between 1955 and 1960, and many of them to the Planning Commission itself. Here we have, *inter alia*, his views on the distribution of wealth and incomes, on deficit financing and inflation, on economic controls, on agricultural development and on the issues raised in framing the third plan. Of equal interest are the author's gloomy reflections in the foreword on the recent course of India's economy. Income distribution has become less and not more equal, optimism about inflation has proved unfounded, the much-vaunted Khadi Board has achieved little and "the situation in administration and public sector management appears as unsatisfactory as before." This failure is blamed largely on lack of perception and intelligence in the political leadership, and a serious crisis can only be averted, believes Professor Gadgil, "if those in power can regain moral authority which they can do only by showing some convincing overt signs of their sincerity and sacrifice for planned development of India."]

GOSDEN (P. H. J. H.). The Friendly Societies in England, 1815–1875. Manchester: Manchester University Press, 1961. 9". Pp. viii + 262. 32*s*. 6*d*.

[To be reviewed.]

GUPTA (S. C.). An Economic Survey of Shamaspur Village. London and Bombay: Asia Publishing House, 1960. 9½". Pp. viii + 148. 27*s*. 6*d*.

[The Agricultural Economics Research Section of the Delhi School of Economics should be complimented on this, the second of what promises to be a valuable series of studies on selected Indian villages. An obviously competent team of economists and statisticians have put a small village in Saharanpur district under its microscope. The result is an illuminating and detailed picture of all aspects of village life and structure which well illustrates the extent of economic backwardness and the major obstacles to development.]

HAWTREY (SIR RALPH). The Pound at Home and Abroad. London: Longmans, Green, 1961. 9". Pp. 212. 27*s*. 6*d*.

[To be reviewed.]

HICKS (U. K.), CARNELL (F. G.), NEWLYN (W. T.), HICKS (J. R.) and BIRCH (A. H.). Federalism and Economic Growth in Underdeveloped Countries. London: Allen & Unwin, 1961. 9". Pp. 185. 25*s*.

[To be reviewed.]

INDIAN STATISTICAL INSTITUTE. Studies on Consumer Behaviour. London: Asia Publishing House, 1960. 11". Pp. iv + 92. 35*s*.

[Developmental planning in India is hampered by lack of statistical information, especially in the consumption field. The seven studies in this volume include an analysis of the consumption pattern of different occupation groups and an estimate of the relative increase of consumer demand in rural and urban India. Much of the book is concerned with the application of recent econometric techniques to the measurement of various income elasticities.]

JACQUES (E.). Equitable Payment. A general theory of work, differential payment, and individual progress. London, Melbourne and Toronto: Heinemann, 1961. 9". Pp. 336. 35*s*.

[To be reviewed.]

JEWKES (J. & S.). The Genesis of the British National Health Service. Oxford: Basil Blackwell, 1961. 8½". Pp. 67. 6*s*. 6*d*.

[To be reviewed.]

LEIGH MELLOR (J.). Income Tax. London: Isaac Pitman, 1961. 9". Pp. xxxix + 210. 30*s*.

[This is a survey of income-tax law, designed largely for the use of those preparing for legal, accounting or secretarial examinations. It is not an exhaustive treatise but aims rather to state the outline of the law.]

NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH. Techno-Economic Survey of Bihar. London and Bombay: Asia Publishing House, 1959. 10". Pp. xvi + 276. 32*s*.

[The Council is undertaking a number of these surveys which aim to provide comprehensive information about the resources of Indian states and their present utilisation, and to suggest proposals for development. That on Madhya Pradesh has already been noted in this JOURNAL (Vol. LXXI, No. 281, March 1961). Among the main conclusions arising from this study of Bihar are the low productivity of its agriculture, which cannot feed the growing population, the inadequacy of irrigation and transport facilities, the absence of a strong middle-class and, apart from a few large-scale modern enterprises, the lack of industrialisation. There is a detailed study of the conditions and prospects of existing industries. The authors make many recommendations for the more rapid planned growth of the state, giving the highest priority to the improvement of agriculture.]

RATH (N.) and SOVANI (N. V.). Economics of a Multiple-purpose River Dam. London and Bombay: Asia Publishing House for the Gokhale Institute of Politics and Economics, 1960. 9½". Pp. xvi + 389. 50*s*.

[This is the report of an inquiry into the economic benefits of the Hirakud dam on the Mahanadi river in Orissa. It incorporates an extensive and detailed survey of the existing economic conditions in the affected areas, profusely illustrated with statistics, and projections of future crop problems and agricultural output after irrigation. In addition, the benefits of flood control, hydro-electric power and the likely costs and financial returns are estimated. The authors rightly stress that the gains from large-scale investment projects of this sort depend ultimately on the willingness and ability of the cultivator to improve his efficiency.]

ROBERTSON (D. J.). A Market for Labour. London: Barrie and Rockcliff, for the Institute of Economic Affairs (Eaton House, 66A Eaton Square, London, S.W.1), 1961. 8½". Pp. 46. 3*s*. 6*d*.

[Professor Robertson examines the institutions of the British labour market—closed shops, complex relations between rates and earnings, inadequate information, inadequate forward provision for top-level staff, inadequate provision for retraining and mobility—and finds them notably wanting. While willing to safeguard social rights and stability, the author would encourage greater opportunities for particular demands in the market to be matched by particular supplies.]

ROLL (E.). A History of Economic Thought. Revised and Enlarged. London: Faber & Faber, 1961. 8½". Pp. 540. 12*s*. 6*d*. Paper-bound.

[This well-known standard history is the latest addition to the growing array of paperback text-books in economics.]

SAVILLE (J.). Rural Depopulation in England and Wales 1851–1951. Dartington Hall Studies in Rural Sociology. International Library of Sociology and Social Reconstruction. London: Routledge and Kegan Paul, 1957. 8½". Pp. xvi + 253. 28*s*.

[This book consists of five independent essays on the general theme of rural depopulation. The first gives the historical background to the problem and emphasises the decline in employment opportunities in the countryside as the fundamental cause. The next two essays are largely devoted to the provision and interpretation of statistical measures, drawn in the main from the censuses of population. The first group deals with the extent of population movement out of specific counties; the second with the selective effects of migration on the age and sex structure of rural and urban areas. The main conclusions drawn by the author from these first three essays are not new, but his comments are always perceptive, and many points of value are made in the discussion. The fourth essay is a most interesting discussion of the contemporary problem, from which it is concluded that the most probable future trend is a further decline of the rural population in England and Wales. The final essay describes the results of a study and detailed survey of eighteen parishes of the South Hams, in Devon, where the population is now below the 1801 level.]

SELF (P.). Cities in Flood. London: Faber and Faber, 1961. 9". Pp. xx + 189. 30*s*.

[The first edition of this admirably clear and well-informed study of the problems of urban growth in Britain appeared in 1957. The new edition has an additional chapter on the concept of the urban region. Mr. Self does not write as an economist, but he gives an intelligent and thoughtful treatment of the economic issues, including the compensation–betterments problem.]

SHACKLE (G. L. S.). Decision Order and Time in Human Affairs. London: Cambridge University Press, 1961. 9″. Pp. xiv + 302. 35s.

[To be reviewed.]

STOLPER (W. F.). The Economics of Competitive Coexistence. Germany between East and West. London: Oxford University Press for the National Planning Association, 1961. 9″. Pp. xl + 79. 14s.

[To be reviewed.]

Australian

BUSHNELL (J. A.). Australian Company Mergers, 1946–59. Melbourne: University Press (London: Cambridge University Press), 1961. 10″. Pp. ix + 223. 37s. 6d.

[To be reviewed.]

Canadian

ANTON (F. R.). Government Supervised Strike Votes. Toronto and Montreal: C. C. H. Canadian Ltd. (1200 Lawrence Avenue W. Toronto 19, Ontario and 1460 Union Avenue, Montreal 2, Quebec), 1961. 9½″. Pp. 190. $9.

[The author uses the experience of government-supervised strike votes in Alberta and British Columbia in order to cast light on the general issues involved. He recognises that the case for and against requiring a ballot before strike action is taken turns partly on fundamental questions about the proper place of unions in industrial relations—questions which cannot be settled by argument. He is able to show, however, that there is good evidence against the view that union leaders are more keen on strikes than their members are. This being so, the case for compulsory government-supervised strike ballots as a necessary democratic safeguard must be considered weak. It may, of course, still be defended simply as a way of making strikes more difficult. But it is open to a number of important objections. The author's conclusion is therefore on balance against.]

BREWIS (T. N.), ENGLISH (H. E.), SCOTT (A.) and JEWETT (P.). Canadian Economic Policy. With a Statistical Appendix by GANDER (J. E.). Toronto: The Macmillan Company of Canada Limited, 1961. 9½″. Pp. xv + 365. 35s.

[To be reviewed.]

Indian

AGARWALA (A. N.). Insurance in India. A study of insurance aspect of social security in India. Allahabad: Law Journal Press, 1960. 9″. Pp. xviii + 628. Rs. 27.50.

[Here is a comprehensive coverage of the subject in four parts. The first is an introductory survey of the nature and scope of social security and insurance. Part II describes and analyses critically the growth and functioning of life insurance in India. In Part III health and employees' insurance are discussed, and in Part IV the author summarises his conclusions. The book is a mine of information which would gain in clarity and readability by drastic pruning. There is a useful bibliography but no index.]

AMBIRAJAN (S.). Malthus and Classical Economics. Bombay: Popular Book Depot (Lamington Road, Bombay 7), 1959. 8½″. Pp. ix + 212. Rs. 12.50.

[This is a general survey of Malthus's work. The author goes through the various aspects of Malthus's thought and compares them with those of Ricardo and other contemporaries. A good familiarity with recent literature on the history of thought is displayed. The author is an enthusiastic admirer of Malthus.]

ASSOCIATION OF INDIAN TRADE AND INDUSTRY: Trends in Share Prices. Bombay: Association of Indian Trade and Industry, 1961. 10″. Pp. 22.

[This pamphlet provides comparative statistics of share and wholesale prices and costs of living in India and a number of "developed" countries from 1939 to 1960. The main conclusions are that Indian share prices have risen less fast than those in other countries and less than general prices, that a booming share market is vital to the country's prosperity and that the authorities should avoid fiscal–monetary measures which would jeopardise the emergent new-issue market.]

BHATT (V. V.). Employment and Capital Formation in Underdeveloped Economies. Bombay: Orient Longmans, 1960. 8¼". Pp. v + 127. Rs. 10.

[In this well-written elaboration of his Harvard doctoral dissertation, the author argues that Indian unemployment is explicable in terms of "the downward inflexibility of the real wage rate" and the lack of "appropriate labour-intensive techniques." Statistical evidence, of admittedly dubious worth, is produced on the capital–output ratios and production methods of advanced and underdeveloped economies, and the "choice of technique" problem is discussed. Ways are suggested by which short-run income and employment could be maximised, for example by encouraging labour-intensive cottage and small-scale industries and rural co-operative communities.]

BHATTACHARYYA (D.). Understanding India's Economy. A Course of Analysis. Calcutta: Progressive Publishers, 1959. 8½". Pp. x + 404. 22*s.* 6*d.*

[In the author's words here is "a panoramic survey in which the main features of the economy are briefly noticed." Well-produced and clearly written, it covers the usual topics—natural resources, agriculture, industry, trade, finance and the plans. There is nothing new here in factual information or treatment. A useful and readable introduction which suffers, *inter alia*, from absence of documentation, a quite inadequate bibliography and the incredible lack of serious discussion of the socio-religious and demographic factors which lie at the root of any understanding of India's economy.]

BRAHMANANDA (P. R.). Studies in the Economics of Welfare Maximization. Bombay: Bombay University Press, 1959. 9". Pp. xx + 520. Rs. 18.

[This is a survey of doctrine in the major topics of welfare theory. The first part of the book is concerned with the classical economists and their approach to problems of policy. Most of the remainder is devoted to Marshall and Pigou and to the elaboration of their ideas—the "new" welfare economics—that took place immediately before and after the Second World War. Dr. Brahmananda's exposition is clear and accurate, and his conclusions are sensible, though in general familiar. The preface explains that most of the book was written in 1950–52, and comparatively little attention is given to work published since that time.]

CHAKRABARTTY (S.). Housing Conditions in Calcutta. Calcutta: Bookland Private Ltd. 8¼". Pp. v + 59. Rs. 5.

[Indian urban housing is notoriously bad. Here is a study which substantiates the generalisations with facts and figures. Thirty per cent of Calcutta's families have no water tap in their homes, 12% no latrine and 45% no electricity. The author provides a mass of gloomy statistics of this sort, including figures on rents and overcrowding. With population growing rapidly and poverty widespread the prospects of which improvement in the near future are slight.]

CHOUDHURY (R.). The Plans for Economic Development of India. Calcutta: Bookland, 1959. 8¼". Pp. x + 187. Rs. 7.00.

[Aimed at the undergraduates who have to face examinations in the subject, this slight study presents the well-known mixture of the case for Indian planning, its evolution since the War and the resource-allocation and achievements of the first two plans. There is no index.]

DE GRAFT-JOHNSON (J. C.). An Introduction to the African Economy. Bombay: Asia Publishing House, 1959. 7½". Pp. 115.

[This short book prints four lectures on Population Trends and Economic Development, Land Tenure and Agricultural Production, Trade and Industry and Economic Activity and the State. These contain some useful information, but lack of space tends towards undue generalisation and over-simplification. The absence of either documentation or a bibliography detracts from the value of the work as an introduction to an economy so vast and complex as that of Africa.]

DIKKEY (B. R.). Hubli City: A Study in Urban Economic Life. Dharwar: Karnatak University Press, 1959. 10". Pp. xx + 281. Rs. 10.00 or 20*s.*

[A comprehensive and detailed statistical study which presents a mass of data on the population, migration, occupations, incomes, employment and housing of a large, backward and poverty-stricken South Indian town.]

GHOSH (S.). Inflation in an Underdeveloped Economy. Calcutta: World Press, 1959. 8¼". Pp. xiii + 220. Rs. 11.00.

[A rather slight study which includes a general discussion on the inflation process and the monetary and fiscal measures to control it, a more valuable study, well illustrated statistically, on inflation in India in the war and early post-war years and, finally, an analysis of the role of deficit finance and its connection with inflationary pressure.]

GHOSH (S.). Trade Unionism in the Underdeveloped Countries. Calcutta: Bookland, 1960. 8½". Pp. ii + 410. Rs. 20.00.

[This is a very general survey of trade unionism in India, Pakistan and a number of countries in South-East Asia. A sketchy historical outline is followed by a discussion on the usual topics of administration, organisation, finance, collective bargaining and so on. The author also attempts to demonstrate ways in which the movement can contribute to economic development. A great deal of useful information is provided, but the field covered is too wide and the evidence too unreliable to make it a definitive work.]

GOWDA (K. V.). Appreciation of the Indian Rupee. A study in International Monetary Mechanism. Allahabad: Chaitanya Publishing House, 1961. 8½". Pp. xvii + 269. Rs. 15.00 or 30*s*.

[A discussion of the 1951 arguments that the rupee was undervalued—a view which is rejected here—is followed by a clear analysis of the likely consequences of appreciation on the balance of payments, terms of trade, price level and budget. There is a postscript on the present position and future prospects of the rupee in which the author argues against flexible exchanges and warns against the balance-of-payments dangers of "grow-quick" deficit financing.]

GULATI (I. S.). Resource Prospects of the Fluid Five Year Plan. Calcutta: Orient Longmans, 1960. 8½". Pp. v + 154. Rs. 10.00.

[A competent study, concerned mainly with ways and means of raising financial resources for the *public* sector. Among the recommendations are the institution of prize bonds to stimulate small savings and a progressive land tax. There are useful appendices on the incidence of land revenue and on the problem of tax avoidance in undivided Hindu families. Neither the resources of the *private* sector nor the possible disincentive effects of extra taxation are given enough consideration.]

GURTOO (D. H. N.). India's Balance of Payments, 1920–1960. Delhi: S. Chand, 1961. 9". Pp. xvi + 241. Rs. 15.00.

[This adaptation of a successful Princeton Ph.D. dissertation adds a great deal to our knowledge of a comparatively neglected subject. In Part I, after a useful survey of source materials, the author provides statistics of India's balance of indebtedness and its components. His figures are an improvement on previous estimates, but their still tentative nature is evinced by the fact that, for example, two different methods of estimating long-term foreign investment result in two widely discrepant answers. Part II contains, *inter alia*, discussions on the exchange policy of the 1920s, the effects of the repatriation of British capital in the 1930s, the relation between cyclical fluctuations and capital flows, and the consequences of partition and the 1949 devaluation on India's trade. The bulk of the book is not concerned with the plan periods, but an element of unrealistic optimism pervades the writer's prognosis of Indian trade prospects in the near future.]

IYENGAR (S. K.). A Decade of Planned Economy. A Critical Examination of Indian Plans. Mysore: Indian Academy of Economics, 1961. 10". Pp. xvi + 347. Rs. 15.00 or 40*s*.

[Many Indian economists are becoming increasingly disenchanted by the efforts of the Planners. The author of this book is one of the most outspoken and destructive in his criticism. He ranges here over most aspects of the economy, and what he finds gives him little pleasure. Among the main objects of his attack are "the mania for heavy industrialisation," the comparative neglect and mishandling of agriculture, the methods and administration of land reform and co-operation and, in general, the unrealistic and doctrinaire policy of the Government. A good deal of his criticisms are justified, and, at times, the refreshing light of common sense shines through his pages. His cause, however, is not helped by his propensity to emotive outbursts, by his frequent failure to develop fully his arguments and by the lack of scholarly documentation. The work is further marred by undue repetition, by lack of organisation and by the absence of an index.]

MEHTA (M. M.). Regional Income Atlas of Madhya Pradesh. Bhopal: Directorate of Economics and Statistics, 1960. 10". Pp. v + 115. Rs. 5.

[This book presents statistical tables and maps illustrating, *inter alia*, the total and *per capita* incomes, the size distribution and occupations of the population, and miscellaneous information on the agriculture, mining, industry and transport of this state and its regions.]

MUKHERJEE (P. K.) and GUPTA (S. C.). A Pilot Survey of Fourteen Villages in U.P. and Punjab. Bombay and London: Asia Publishing House, 1959. 9½". Pp. vi + 195. 41*s.* 6*d.*

[This pilot survey is the first of a number of studies of selected Indian villages to be made by the Agricultural Economics Research Section of the Delhi School of Economics. The aim is to provide a continuous survey of these villages over a long period of time and to illustrate both the obstacles to and the extent of rural change and development. The first is a competent survey and discusses not only the methods to be used in future but also gives much useful statistical information on many aspects of village life.]

NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH. Saving in India. New Delhi: National Council of Applied Economic Research, 1961. 9". Pp. xii + 188. Rs. 11.25 or 20*s.*

[The Council has already published about thirty-five useful monographs, occasional papers and reports, several of which have been noted in the JOURNAL. This monograph goes some way towards filling a serious gap in the knowledge of Indian students and planners. Well-tried methods are used to provide estimates of total, Government, corporate and individual saving in India from 1948–49 to 1957–58. Among the main findings are the substantial increase in savings over the period, the fact that Government, corporations and individuals account for 15%, 5% and 80% of savings respectively, that the average saving–income ratio has risen to 10% during the first two years of the Second Plan and that the marginal propensity to save is much higher than is generally realised. The authors are well aware of the unreliability of some of their evidence and of the tentative nature of their conclusions, but they have in hand further studies which will check and improve their estimates.]

SRIVASTAVA (R. S.). Agricultural Marketing in India and Abroad. Bombay: Vora and Co., 1960. 8½". Pp. 243. Rs. 12.50.

[This is the revised edition of a 1948 Oxford B.Litt. dissertation. It provides a great deal of information on the growth and organisation of markets in India, on co-operation, transport, storage problems and so on. There are illuminating references to marketing history and policy in other countries, especially Britain. The author concludes that "in India little has been done to build a suitable marketing structure" and that this is "the crux of the whole food and agricultural problem."]

THIRUMALAI (S.). Inflation in a Developing Economy. Bombay: The Indian Merchants' Chamber Economic Research and Training Foundation, 1961. 9". Pp. v + 121. Rs. 6.00.

[Surprisingly little has been written on Indian inflation. Here a discussion, profusely illustrated with statistics, of the extent and causes of inflation during the first two plans is followed by an appraisal of the likely course of prices during the third. It is argued, with apparently considerable justification, that present policy will inevitably result in severe inflationary pressure over the next few years. Some of the harmful results of inflation on savings, the growth of the middle class and on economic growth generally are postulated.]

THIRUMALAI (S.). Resources for the Third Five Year Plan. Bombay: The Indian Merchants' Chamber Economic Research and Training Foundation, 1961. 9". Pp. vii + 148. Rs. 7.00.

[A useful and penetrating study in two parts. The first describes and analyses the existing resources of India and their allocation in the first two plans. A projection is made of the available resources for the third plan. In the second part the author discusses critically the problems of resource-mobilisation, including deficit finance, external aid and taxation. The increasing burden of securing foreign debt and the dangers of excessive deficit financing are stressed. There are many statistical tables and a short bibliography.]

WAGLE (S. S.). Technique of Planning for Accelerated Economic Growth of Underdeveloped Countries. Bombay: Vora and Co., 1961. 8½". Pp. x + 296. Rs. 12.00.

[The author believes in comprehensive planning, and in this highly theoretical study he discusses some of the main problems facing the planners. Among these are the optimum rate of investment, the problem of resource mobilisation and allocation, the choice of project and technique, the locational matrix of industries and the case for economic regulations and controls. The last he believes to be indispensable in underdeveloped economies. The discussion is sophisticated and lucid and evinces familiarity with both the literature and the tools of analysis. But one is left with the impression that, in countries devoid of good statistical data, the practical value of some of his proposals will be limited.]

New Zealand

BLYTH (C. A.). Economic Growth, 1950–60. Wellington, New Zealand: New Zealand Institute of Economic Research (26 Kelburn Parade, Wellington, W.1), 1961. 8″. Pp. 14.

[Dr. Blyth initiates the publications of his new Institute by a survey of New Zealand's performance in the last decade. Productivity, he shows, grew at only 1·2% per year, although population growth was such that total output expanded at 3% per year. In both industry and agriculture, marginal capital–output ratios have been especially high, a fact he explains in part by the inefficient use of capital in at least some branches of industry. Finally, he discusses the problem of accelerating rates of growth.]

American

ACKLEY (G.). Macroeconomic Theory. New York and London: The Macmillan Company, 1961. 9½″. Pp. xv + 597. 42*s*.

[This text-book is designed for use in courses for final-year undergraduates or first-year graduates in American universities. Part I deals with concepts and measurement (mainly national income). Parts II and III, which between them occupy half the book, deal, in effect, with "LM and IS," and also with the consumption function. Part IV deals considerably more briefly with a number of other aspects of macro-theory: inflation, the theory of investment, Harrod–Domar and the like. The exposition is clear and much ground is covered. Rather surprisingly, the author gives only the briefest discussion of policy issues. This, combined with the continual recitation of alternative models or theories put forward by different economists, gives the book a rather more scholastic air than most British university teachers of economics would probably consider appropriate for a book at this level of difficulty.]

ASCHHEIM (J.). Techniques of Monetary Control. Baltimore, Maryland: Johns Hopkins (London: Oxford University Press), 1961. 9″. Pp. viii + 164. 36*s*.

[To be reviewed.]

BALDWIN (G. B.). Industrial Growth in South India. Case Studies in Economic Development. Glencoe, Illinois: The Free Press, for The Center for International Studies, Massachusetts Institute of Technology, 1960. 8½″. Pp. xxii + 339.

[This is one of a number of books on Asian problems produced by the Center for International Studies at the Massachusetts Institute of Technology. Here the author provides thirty-seven short case studies of major State and private industries in Mysore. His evidence comes mainly from interviews with industrialists. This fact plus the large number of firms covered make some of the studies superficial and some of the data of dubious reliability. But there is a great deal of valuable information and penetrating insight into problems of Indian industrialisation. The sources of finance for industry, the administration of Government enterprises, the difficulties of recruiting skilled labour and management, the problems of raw materials, markets and transport are all well illustrated from the experience of the enterprises studied. If there is any main theme it is the importance of progressive entrepreneurs, and the thumb-nail sketches of the origins and activities of some of these are among the most interesting things in the work.]

BATOR (F. M.). The Question of Government Spending. New York: Harper & Brothers, 1960. 8½″. Pp. xvi + 167. $3.75.

[This is an admirably lucid and level-headed study which can in many ways stand as a model of the sort of contribution which the economist can make to informed public discussion of issues involving his professional sphere of influence. The issue in question is the relationship between public and private spending and its implication for such matters as inflation, fiscal policy, economic growth and consumers' welfare. Professor Bator's main purpose is to show that most of the propositions advanced by those opposed to the current level of United States public spending (and *a fortiori* to a higher level relative to G.N.P.) are wrong or irrelevant, and he attempts to do this by concise and instructive deployment of facts, logic and the relevant principles of economic analysis. For the latter he draws mainly on Samuelson's theory of public expenditure. The statistical material and the carefully stated value judgments relate essentially to conditions in the United States, but the importance of the subject and the merits of its treatment lead one to suggest that the book might also be read with profit in other countries.]

BAUM (E. L.), DIESSLIN (H.) and HEADY (E. O.). Capital and Credit Needs in a Changing Agriculture. Ames, Iwoa: The Iowa State University Press (Press Building, Ames, Iowa), 1961. 9½″. Pp. xix + 406. $4.95.

[To be reviewed.]

BEARD (C. A.). An Economic Interpretation of the Constitution of the United States. New York and London: The Macmillan Company, 1961. 8″. Pp. xx + 330. 12*s*.

[This book first appeared in 1913 and was reissued with a new introduction in 1935. The present paperback is a reproduction of the 1935 edition.]

BENOIT (E.). Europe at Sixes and Sevens. The Common Market, The Free Trade Association, and the United States. New York: Columbia University Press, 1961. 9″. Pp. xiii + 275. 37*s*. 6*d*.

[To be reviewed.]

BENSON (C. S.). The Economics of Public Education. Boston: Houghton Mifflin Company, 1961. 9½″. Pp. 580. $7.

[To be reviewed.]

BOULDING (K. E.). Economic Factors Bearing Upon the Maintenance of Peace. Part I: Perspective on the Economics of Peace. New York: Institute for International Order, 1961. 10″. Pp. 38. $0.50.

[The author argues that, while much current economic research is *relevant* to the problem of peace maintenance, it is not specifically *directed* to this problem. The Institute is sponsoring a number of political, legal and economic studies in this field. In this pamphlet, a preface to other works, Professor Boulding raises the question of what economic factors make for peace or war and proposes a large number of topics for further research. In the appendices are summaries of reports prepared for the Institute by Emile Benoit on "Economic Adjustments to Disarmament," by Bert Hoselitz on "Economic Aid for Development," by W. S. Thompson on "The Problem of Overpopulation" and by Philipps Foster and Lawrence Witt on "Effective Use of Agricultural Surpluses."]

BYLLESBY (L.). Observations on the Sources and Effects of Unequal Wealth with Propositions towards Remedying the Disparity of Profit in Pursuing The Arts of Life and Establishing Security in Individual Prospects and Resources. (Re-print in limited edition of 350 copies.) New York: Russell & Russell, 1961. 8″. Pp. 195. $15.

[To be reviewed.]

CONFERENCE ON RESEARCH IN INCOME AND WEALTH. Output, Input and Productivity Measurement; Studies in Income and Wealth; Volume XXV. Princeton, New Jersey: Princeton University Press (London: Oxford University Press), 1961. 9½″. Pp. xx + 506. 80*s*.

[To be reviewed.]

CONRAD (J. W.). Introduction to the Theory of Interest. Berkeley and Los Angeles: University of California Press, 1959 (London: Cambridge University Press, 1961). 9½″. Pp. xx + 375. 60*s*.

[To be reviewed.]

COPELAND (M. A.). Trends in Government Financing. Princeton, N.J.: Princeton University Press (London: Oxford University Press), 1961. 9″. Pp. xxvi + 210. 40*s*.

[To be reviewed.]

CREAMER (D.), DOBROVOLSKY (S. P.) and BORENSTEIN (I.). Capital in Manufacturing and Mining. Its Formation and Financing. Princeton, New Jersey: Princeton University Press for the National Bureau of Economic Research, 1960 (London: Oxford University Press, 1961). 9″. Pp. liv + 344. 60*s*.

[To be reviewed.]

GOODWIN (C. D. W.). Canadian Economic Thought: The Political Economy of a Developing Nation 1814–1914. Duke University Commonwealth-Studies Center. Durham, N.C.: Duke University Press (London: Cambridge University Press), 1961. 9″. Pp. xvi + 214. 48*s*.

[The greater part of this study, originally a doctoral dissertation, is a painstaking account of the pre-1914 discussions and *ad hoc* prescriptions of Canadians, in relation to three major economic issues (land settlement, tariffs and currency and banking) and a number of minor issues. The one nineteenth-century Canadian of any importance in the history of economic thought is John Rae

and he is explicitly excluded from full discussion in this study on the grounds that his place is already "well recognised and secure." The origin and development of the ideas of others are traced in great detail; and on each economic issue the author has little difficulty in establishing his conclusion: with the possible exception of Robert Gourlay, a Scottish immigrant whose writings in Canada influenced Wakefield, no ideas of any consequence were contributed to economic thought by these Canadians.]

GRAMPP (W. D.). The Manchester School of Economics. Stanford, California: Stanford University Press (London: Oxford University Press), 1960. 8½". Pp. viii + 155. 25*s*.

[To be reviewed.]

HANSEN (B.). Contributions to Economic Analysis: Foreign Trade Credits and Exchange Reserves. Amsterdam: North-Holland Publishing Company, 1961. 8½". Pp. 144. 27*s*.

[To be reviewed.]

HASHMI (R. M. H.). Studies in Functional Income Distribution. East Lansing, Michigan: Bureau of Business and Economic Research, Michigan State University, 1960. 10". Pp. 54.

[This contains two separate essays in the use of national-income statistics. In the first the author argues that in studying the distribution of the national income it is misleading for certain purposes to follow the usual practice of deducting depreciation before arriving at a figure for profit while not making any corresponding deduction in the case of labour income. He therefore carries out a comparison of shares calculated gross for both profits and wages and also a comparison using net profits, on the one hand, and wages minus food consumption, on the other. In the second essay the author analyses the effect of inflation on distribution. He finds that both profit-earners and wage-earners have gained at the expense of rentiers.]

HEADY (E. O.), BAKER (C. B.), DIESSLIN (H. G.), KEHRBERG (E.) and STANIPORTH (S.). Agricultural Supply Functions—Estimating Techniques and Interpretations. Ames, Iowa: Iowa State University Press, 1961. 9". Pp. 305. $3.95.

[To be reviewed.]

HEALY (K. T.). The Effects of Scale in the Railroad Industry. New Haven, Connecticut: Yale University Committee on Transportation, 1961. 9". Pp. 46.

[The effect found is that an increase in scale above a certain point (10,000 employees) is associated with an increase in wages and running expenses and with lower rates of return on capital; and above 19,000 employees with a rise in unit capital requirements. These are the main results of a thorough statistical analysis of the operations of thirty-seven American railway systems in 1954–56. Account is taken of such points as regional differences, the effects of traffic density as distinct from scale, and of measures of scale other than the number of employees.]

HENDERSON (J. H.). National Income: Statics and Dynamics. New York: Harper Brothers, 1961. 8½". Pp. viii + 439.

[To be reviewed.]

HICKMAN (W. B.) and SIMPSON (E. T.). Statistical Measures of Corporate Bond Financing since 1900. Princeton: Princeton University Press (London: Oxford University Press), 1960. 11". Pp. xxx + 582. 72*s*.

[This massive, handsomely produced volume is the last of Mr. Braddock Hickman's three studies in corporate bond financing and provides a full record of the basic statistics summarised and discussed in the earlier volumes. It consists of 233 tables divided into six sections, each preceded by an explanatory note of two or three pages; and the book is rounded off by an indispensable glossary. The tables appear to cover every conceivable statistical measure and classification of corporate bond finance between 1900 and 1944 in which economists or investors are likely to be interested. Selecting a table at random to illustrate the richness of this statistical mine we find in Table 156 the: "Par amount of defaulted issues 1900–1943, classified by the difference between price at default and receipts after default discounted at 3 per cent, by size of issue, by major industry group for large issues, and by selected periods of default."]

HITCH (T. K.). Economics for the 1960's. Honolulu: First National Bank of Hawaii, 1961. 10". Pp. 99.

[This contains a series of lectures on problems of the present-day American economy by visiting economists at the invitation of the First National Bank of Hawaii. The lectures were attended mainly by business leaders.]

JASNY (N.). Soviet Industrialization, 1928–1952. Chicago, Illinois: University of Chicago Press (Chicago 37), 1961. 9¼". Pp. 466. $10.

[To be reviewed.]

KNOELLINGER (C. E.). Labor in Finland. Cambridge, Mass.: Harvard University Press, 1960 (London: Oxford University Press, 1961). 9¼". Pp. xii + 300. 48*s*.

[This is a full-length study of the history and present state of organised labour in Finland. The author is Professor of Economics in a Finnish university. The book deals in its first six chapters with the historical background and in the remaining five with the present position. Political factors have largely shaped the course of labour history in Finland and have been responsible for making industrial relations there more turbulent than in the rest of Scandinavia. In the inter-war period, after the civil war of 1918 the Labour movement was weakened by dissension between Communists and Socialists and then by the growing strength of Fascism. Professor Knoellinger argues that the weakness of organised labour in this period had an adverse effect on the proportion of the national income going to labour. After 1945 the balance of political and industrial power was drastically shifted, and collective bargaining was introduced for the first time. Events in the labour market can be understood only against the background of the country's general economic development, notably the exceptionally rapid rate of growth, which Finland, in common with other defeated countries, has enjoyed since the Second World War. The author therefore gives a good deal of attention to general economic conditions as well as to the details of labour organisation itself.]

KRAUSE (W.). Economic Development. San Francisco, California: Wadsworth Publishing Company, 1961. 9". Pp. xiv + 524.

[To be reviewed.]

LEVIN (J. V.). The Export Economies. Their Pattern of Development in Historical Perspective. Cambridge, Mass.: Harvard University Press, 1960 (London: Oxford University Press, 1961). 8½". Pp. xiv + 347. 54*s*.

[The first 100 pages and 313 footnotes of this study are devoted to an extremely detailed description of the rise and fall of the Peruvian guano export economy in the period 1840–80. The geographical and temporal terms of reference are then widened to survey the sources from which export economies in Africa, Asia and Latin America obtained the necessary supplies of labour, capital and entrepreneurship; and to consider the significance of the predominant role played by foreign factors of production in the period up to 1938. The second part of the book deals with the present conditions and prospects of these economies. It again begins with a detailed case history: the operations of the Burmese State rice-marketing Board in the years 1947–53. This is followed by a review of the various fiscal and other techniques currently adopted by governments in order to tap as much as possible of the earnings of foreign factors of production; or alternatively, to eliminate foreign factors and induce domestic labour, capital and entrepreneurship to assume their functions.

The author has an important theme and has carefully assembled a great mass of information, much of it of interest. But he has, one might say, been unable to see the paddy fields for the grains of rice. The book would have been of much more value if the author had been less concerned with the presentation of factual detail and more interested in the analysis and interpretation of his material.]

MOORE (G. H.) (Ed.). Business Cycle Indicators. 2 volumes. Basic Data on Cyclical Indicators. Princeton, New Jersey: Princeton University Press for the National Bureau of Economic Research (London: Oxford University Press), 1961. 9". Pp. xvii + 179 and xxv + 757. 120*s*.

[To be reviewed.]

MORRIS (B. R.). Problems of American Economic Growth. New York: Oxford University Press, 1961. 8¼". Pp. viii + 279.

[This is a rather unusual type of elementary book on economics. It assumes little or no prior knowledge, and it contains no discussion of theory as such. But the treatment is scholarly and well documented, and in some parts it is carried to quite an advanced level and takes the reader to the frontier of present research. A large amount of ground is covered. In its concentration on the real problems of present-day policy the book's scope may be compared with that of Mr. Shonfield's well-known Penguin. But the attitudes of the two authors are very different. Mr. Morris is at pains to

show the reader how difficult the important questions of economics are to answer properly. He explains in his preface that one of his aims has been to counteract the unduly cut-and-dried attitude imparted by many elementary American text-books. Much well-chosen statistical material is provided to help the reader form his own impressions. There are also extensive references to the literature. A reader wholly unfamiliar with economic theory may have some difficulty in putting all Mr. Miller's material in perspective (after all, if this were not so, why do we bother to teach theory?). But the aim of the book is wholly admirable, and it should certainly succeed in widening the horizons of students who have been through a text-book of the more ordinary type.]

Mosteller (F.), Rourke (R. E. K.) and Thomas (G. B.). Probability with Statistical Applications. Reading, Mass., and London: Addison-Wesley Publishing Co. (Reading, Mass., and 10 Chitty St., London, W.1.), 1961. 9¼". Pp. xv + 478. 38*s*.

[To be reviewed.]

National Bureau of Economic Research. Trends in the American Economy in the Nineteenth Century. By the Conference on Research in Income and Wealth. Princeton, New Jersey: Princeton University Press, 1960 (London: Oxford University Press, 1961). 9". Pp. xi + 780. 120*s*.

[To be reviewed.]

National Bureau of Economic Research. Demographic and Economic Change in Developed Countries. A Conference of the Universities—National Bureau Committee for Economic Research. Princeton, New Jersey: Princeton University Press, 1960 (London: Oxford University Press, 1961). 9". Pp. xi + 536. 96*s*.

[To be reviewed.]

National Bureau of Economic Research. Public Finances: Needs, Sources, and Utilization. Princeton, New Jersey: Princeton University Press (London: Oxford University Press), 1961. 9". Pp. xiv + 512. 80*s*.

[To be reviewed.]

Nurkse (R.). Equilibrium and Growth in the World Economy. Edited by Gottfried Haberler. Cambridge, Mass.: Harvard University Press (London: Oxford University Press), 1961. 8½". Pp. xiii + 369. 60*s*.

[To be reviewed.]

Phelps (C. W.). Commercial Credit Insurance as a Management Tool. Baltimore, Maryland: Commercial Credit Company, Educational Division, 1961. 9". Pp. vii + 111.

[This is a rather elementary monograph, designed to explain why many American enterprises find it worthwhile to insure against abnormal bad debts incurred through the default of business debtors. Personal debtors are specifically excluded. Apart from reimbursement of losses the advantages claimed include assistance in prevention of bad debts and in collection of debts; increased sales through avoidance of unnecessary credit restrictions; and general aid in increasing efficiency and reducing expenses.]

Raiffa (H.) and Schaifer (R.). Applied Statistical Decision Theory. Boston, Mass.: Harvard University Graduate School of Business Administration, 1961. 10". Pp. xxviii + 356. 76*s*.

[To be reviewed.]

Rees (A.). Real Wages in Manufacturing, 1890–1914. Princeton, New Jersey: Princeton University Press (London: Oxford University Press), 1961. 9½". Pp. xvi + 163. 30*s*.

[Real wages in the United States, as measured by the previously available statistics, showed practically no growth between 1890 and 1914. The authors undertook this study because they felt that the explanations usually put forward for this stagnation were inadequate and that part at least of the recorded trend in real wages might be due to faulty statistics. They have constructed new estimates of average hourly earnings in manufacturing and of the cost-of-living, and the resulting series for the real earnings of manufacturing workers increases at an annual compound rate of 1·3% between 1890 and 1914. This is slightly lower than the rate of increase between 1860 and 1890, and considerably lower than the rate of increase since 1914. They therefore conclude that factors such as the closing of the frontier and the high level of immigration did have some effect in holding down real wages, though nor nearly as large an effect as previously believed. The new series for real

wages differs from the old primarily because of revisions to the cost-of-living index, particularly the inclusion of an index of rents, and the substitution of retail prices for some goods in place of wholesale prices. The study concludes with the pertinent observation that since the pre-1914 cost-of-living index for the United Kingdom has the same kinds of defects as the previously accepted indexes for the United States, it might well be worth while to re-examine also the conclusion that real wages in the United Kingdom were unchanged from 1890 to 1913. It is greatly to be hoped that if this long overdue task of statistical revision is undertaken the methods will be as carefully chosen and as fully described as in the present study.]

REEVES (D. D.). Resources for the Study of Economic History, A Preliminary Guide to Pre-Twentieth Century Printed Material in Collections Located in Certain American and British Libraries. Baker Library, Harvard Graduate School of Business Administration. Cambridge, Mass.: Harvard University Printing Office, 1961. 10½". Pp. ix + 61.

[The object of this preliminary guide is to list the hours, regulations, facilities, acquisition policy and resources for the study of economic history of a select number of libraries. It is described in the preface as a " tentative, explanatory, incomplete affair " and a more complete compilation on the present lines would undoubtedly be useful. Only two British Libraries are included: the British Library of Political and Economic Science at the London School of Economics and the Goldsmith's Library at the University of London.]

ROWAT (D. C.) (Ed.). Basic Issues in Public Administration. New York: The Macmillan Company, 1961. 9½". Pp. xv + 500. 41*s.* 6*d.*

[This is a collection of readings on forty topics in the field of public administration. In order to stimulate students' critical faculties, the coverage provided for each of the topics consists of two articles, representing more or less opposite points of view.]

SAMUELSON (P. A.). Economics: An Introductory Analysis. New York, Toronto and London: McGraw-Hill Publishing Co. Ltd., 1961. 10". Pp. 853.

[This deservedly successful text-book does not need further recommendation. The fifth edition contains an extra fifty pages, with new material on a few subjects such as the problems of growth and price stability in advanced economies, the change from a dollar shortage to the prospect of a chronic American trade deficit and cost-push inflation; all the statistics and references are brought up to date; and there is some re-arrangement and revision of the sections which cover micro-economics, distribution theory and international comparative advantage. The great bulk of the material, however, shows no change from the previous edition.]

SAMUELSON (P. A.) and ROBINSON (R.). Study Guide and Workbook to Accompany Samuelson: Economics, Fifth Edition. New York, Toronto and London: McGraw-Hill, 1961. 10". Pp. ix + 243.

SAMUELSON (P. A.), FOSTER (E. M.) and SKIDMORE (F.). Instructor's Manual and Answer Key to Study Guide and Workbook by Paul Samuelson and Romney Robinson. New York, Toronto and London: McGraw-Hill, 1961. 10". Pp. xiii + 152.

[It may interest some of those teachers outside the United States who recommend " Samuelson " to their pupils to know that McGraw-Hill publish this *Study Guide and Workbook* and *Instructor's Manual* to accompany it. The purpose of the *Study Guide* is described as being " to help you master the ideas and principles contained in that text." A student is recommended first to read each chapter rapidly and bravely. Then, second, he should read the introductory remarks in the corresponding study-guide chapter. Third, he should re-read the chapter. Fourth, he should tackle the Review Questions in the *Study Guide*. Fifth, he should, with the assistance of the *Guide*, go back again to the text. Finally he should tackle the essay, multiple-choice and true-false question in the *Guide*. He should then proceed to the next chapter and repeat. Any teacher who is not sure (and who would be?) of the answers may buy the *Instructor's Manual*—and hope his class has not.]

SOHMEN (E.). Flexible Exchange Rates. Theory and Controversy. Chicago, Illinois: University of Chicago Press, 1961. 8½". Pp. xiv + 173. 42*s.*

[To be reviewed.]

SOULE (G.). Vertical Integration in the Broiler Industry on the Delmarva Peninsula and its Effect on Small Business. Washington D.C.: Washington College for Small Business Administration (Washington 25, D.C.), 1960. 9". Pp. 92.

[The rate of growth of demand for broiler chickens in the United States is declining after a period of very rapid expansion before the War, and this report examines the development of the industry on the Delmarva Peninsula against this background. The process of vertical integration which has taken place during both market situations extends over seven stages from the specialised breeding of the parent stock through the production of broiler feed to the final purchase of dressed, packed birds

by the supermarkets. The reasons for this integration and its advantages and disadvantages were elicited by means of interviews and questionnaires. Only one firm owns units undertaking all stages, but ownership covering two to four stages is common, as is contract integration, usually initiated by the feed mills and covering the hatching and growing stages. There has been a spectacular increase in the efficiency of the industry which can in part be attributed to vertical integration.]

SPENCER (M. H.), CLARK (C. G.) and HOGUET (P. W.). Business and Economic Forecasting. An Econometric Approach. Homewood, Illinois: Richard D. Irwin, Inc., 1961. 9". Pp. xii + 412. $10.60.

[To be reviewed.]

STOCKING (G. W.). Workable Competition and Antitrust Policy. Nashville, Tennessee: Vanderbilt University Press (Nashville 5, Tennessee), 1961. Pp. viii + 451. $7.50.

[To be reviewed.]

SUPPES (P.) and ATKINSON (R. C.). Markov Learning Models for Multiperson Interactions. Stanford, California: Stanford University Press (London: Oxford University Press), 1961. 10". Pp. 296. 66s.

[We draw the attention of those interested to the existence of this book, which is too specialised for review in the ECONOMIC JOURNAL.]

THEOBALD (R.). The Rich and the Poor. A Study of the Economics of Rising Expectations. New York: Mentor Books, New American Library. 7". Pp. ix + 160. 4s.

[This sensible book is written for the general (American) reader, though its main theme is one which most economists would endorse. After a discussion of the present conditions in the underdeveloped countries it is argued that the present division of wealth between nations is unstable and that it is in the interests of the rich nations, quite apart from any moral obligations, to aid the development of the poor. The steps proposed include increased imports from these countries, stabilisation of primary product prices and the development of machinery more appropriate to the existing factor proportions in the poor countries. The author is at pains to emphasise that his approach to these problems is based on a rejection of many of the neoclassical assumptions.]

French

COLLETTE (J.). La recherche-développement en Grande-Bretagne. Paris: Institut de Science Économique Appliquée, 1961. 8½". Pp. 183.

[To be reviewed.]

DELEFORTRIE-SOUBEYROUX (N.). Les dirigeants de l'industrie française. Paris: Librairie Armand Colin, 1961. 9½". Pp. 280.

[To be reviewed.]

LACROIX (J.) and others. Le progrès. Paris: Institut de Science Économique Appliquée, 1961. 8½". Pp. 180.

[To be reviewed.]

LACROIX (J.), CAZES (B.), NIEL (H.) and GUÉRÉMY (J.). Recherches et Dialogues philosophiques et économiques. Four essays. Paris: Institut de Science Économique Appliquée (35 Boulevard des Capucines, Paris), 1961. 8½". Pp. 109.

[To be reviewed.]

LAMBERT (P.) and MINEUR (J.) (Ed.). L'économie de la région liégeoise. Paris: Presses Universitaires de France, 1960. 9½". Pp. 647. NF 40.

[Part I is a demographic and natural resource survey. Part II an extensive study of industry, agriculture, and commerce, crowned by a 25 × 25 input–output matrix. The development of industry, the dependence on "export" trade, the movement of labour, the problem of communications and the possible results of the Common Market are all discussed and exemplified by appropriate statistics.]

LEDUC (G.) and others. Les problèmes de l'investissement dans les pays d'outre-mer. Algerie, Tunisie, Maroc, Afrique Occidentale et Equatoriale, Sud-Vietnam and Cambodge. Paris: Institut de Science Économique Appliquée, 1961. 8½". Pp. 206.

[To be reviewed.]

NEGREPONTI-DELIVANIS (M.). Influence du développement économique sur la répartition du revenu national. Paris: Société d'Edition d'Enseignement Supérieur (33 boulevard Saint-Michel, Paris 5), 1960. 10". Pp. 492.

[To be reviewed.]

PERROT (M.). Le mode de vie des familles bourgeoises. Paris: Armand Colin for the Fondation nationale des Sciences politiques, 1961. 9¼". Pp. 299.

[Mlle Perrot assembled 547 family budgets, based on private household accounts (mostly drawn from the earlier part of her period). From her sample, she computes synthetic "equivalent-adult" scales; she thus incidentally estimates the cost of children to families of different living standards. From this derived data, she plots seq. relating various categories of expenditure to total incomes, and computes (cross-section) income elasticities. One chapter discusses the marginal propensity to consume and the evidence for a "ratchet effect." The study, with its details of expenditure, is of sociological as well as of economic interest.]

PERROUX (F.). Économie et société. Contrainte—Échange—Don. Paris: Presses Universitaires de France, 1960. 7". Pp. 186. NF. 6.

[To be reviewed.]

REINOUARD (D.). Les transports de marchandises par fer, route et eau depuis 1850. Paris: Armand Colin for the Fondation nationale des Sciences politiques, 1960. 9¼". Pp. 130.

[This study examines the growth in kilometre-tonnage carried by French transport industry, and its division among the three main carriers. The gain by the railways is analysed according to geographical region and type of commodity carried. An estimate is made of the effect of economic growth on transport needs.]

SINGER-KÉREL (J.). Le coût de la vie à Paris de 1840 à 1954. Paris: Armand Colin for the Fondation nationale des Sciences politiques, 1961. 9¼". Pp. 560.

[This study assembles five basic indices of consumer prices for the Paris district, examining their inter-relations and comparing their movements with other historical series. The second half of the volume contains detailed series and weighting tables, themselves of great interest to the historian. Of the five series, two have weights drawn from working-class budgets respectively of 1856 and 1949; two are series formed by linking indices based on the weights of different dates; and one is a composite index. Changes in *bourgeois* and working-class living costs are estimated, and one chapter explicitly discusses the dispersion of price relatives at various dates. Practical problems of finding individual prices and dealing with the appearance of new goods are discussed and resolved.]

Belgian

DE BIE (P.). Budgets familiaux en Belgique, 1957–1958. Modes de vie dans trois milieux socio-professionels. Louvain and Paris: Nauwelaerts (2 Place Cardinal Mercier, Louvain; 10 rue de l'Abbage, Paris 6), 1960. 10". Pp. 436. 350 FB.

[The author collected, on the same basis as the British surveys, budgets for 409 working-class families, 281 peasant families, and 107 middle-class families. By careful stratification and by separating as far as possible purchases intended for different members of the family, an estimate is made of the cost of children to different groups. Cross-section income elasticities for the groups are computed. Some information has also been collected about ownership of consumer durables, according to income and family size.]

REUSS (C.), KOUTNEY (E.) and TYSHON. Le progrès économique en sidérurgie. Belgique, Luxembourg, Pays-Bas 1830–1955. Louvain: Institut de Recherches Économiques et Sociales de l'Université de Louvain (Place Monseigneur Ladeuze, Louvain), 1960. 10". Pp. 461. 475 FB.

[The first part of this volume surveys the general development of iron and steel in what is now Benelux. The second part contains two case studies: one of the stages through which a typical Belgian firm adapted itself to successive technical developments in the nineteenth century; and one of the introduction of a semi-continuous rolling mill into an old established plant after 1945. The third part studies price movements, in particular changes in the relative prices of "semis" and finished products, and the fourth part discusses the process of capital accumulation including some computation of capital output and capital labour ratios.]

Dutch

LUNDSTRÖM (H. O.). Capital Movements and Economic Integration. European Aspects. Leyden: A. W. Sythoff, 1961. 9¼". Pp. 231.

[To be reviewed.]

STREETEN (P.). Economic Integration. European Aspects. Leyden: A. W. Sythoff, 1961. 9¼". Pp. 150.

[To be reviewed.]

Swedish

OHLSSON (I.). On National Accounting. Stockholm: National Institute of Economic Research, 1961. 9¼". Pp. vii + 353.

[To be reviewed.]

SAMUELSSON (K.). Religion and Economic Action. Translated by E. G. FRENCH. Stockholm: Svenska Bokförlaget, Scandinavian University Books (London, Melbourne and Toronto: Heinemann), 1961. 8¼". Pp. xi + 157. 21*s*.

[This book first appeared in Swedish in 1957. For the English edition, a number of additional explanatory points have been added in the footnotes.]

Japanese

TSURU (S.). (Ed.). Has Capitalism Changed? An International Symposium. Tokyo: Iwanami Shoten, 1961. 8¼". Pp. 222. ¥4.

[To be reviewed.]

YAMADA (I.). Theory and Application of Interindustry Analysis. Tokyo: Kinokuniya Bookstore Co. Ltd., for the Institute of Economic Research, Hitotsubashi University, Tokyo, Japan, 1961. 8¼". Pp. 254.

[To be reviewed.]

Official

INTERNATIONAL

CÉPÈDE (M.), ABENSOUR (E. S.) and VEYRET (P. and G.). Rural Problems in the Alpine Region. Rome: Food and Agriculture Organization of the United Nations, 1961. 9". Pp. vii + 201. 7*s*. 6*d*.

[This report covers the Alpine regions of Austria, Bavaria, France, Italy and Switzerland, and deals with natural conditions, land use and soil conservation, occupations, institutions and social conditions, and demographic trends. It combines a comparative review of the existing legislation designed to help the Alpine population, and a discussion of the results obtained by a special survey undertaken by each country. Unfortunately, as the authors carefully point out, different sampling schemes were used—for example, the French excluded and the Swiss included tourist centres—so that potentially interesting international comparisons were frequently invalidated even though a standard questionnaire was used.]

FELLNER (W.), GILBERT (M.), HANSEN (B.), KAHN (R.), LUTZ (F.) and DE WOLFF (P.). The Problem of Rising Prices. Paris: The Organisation for European Economic Co-operation, 1961. 9¼". Pp. 489. 21*s*.

[To be reviewed.]

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT. The Economic Development of Venezuela. Baltimore, Md.: Johns Hopkins Press (London: Oxford University Press), 1961. 9¼". Pp. 494. 68*s*.

[To be reviewed.]

ORGANISATION FOR EUROPEAN ECONOMIC CO-OPERATION. The Flow of Financial Resources to Countries in Course of Economic Development 1956–1959. Paris: O.E.E.C., 1961. 12". Pp. 142.

[This a most useful compilation of the total flow of long-term non-military investments, grants, export credits and other public and private financial resources from O.E.E.C. Member countries and Associates (U.S.A. and Canada) plus Japan to underdeveloped countries and multilateral agencies. Totals for each of the years 1956–59 are followed by statistical details for each creditor country and a discussion of definitions, sources and relevant regulations.]

ORGANISATION FOR EUROPEAN ECONOMIC CO-OPERATION: Economic Conditions in Member and Associated Countries of the O.E.E.C.: Italy: Paris: O.E.E.C., 1961. 9¼". Pp. 40. 3s.

[This is one of the useful O.E.E.C. annual series which provide a convenient means of obtaining a concise picture of economic developments in member and associated countries. It covers the period to the end of 1960, during which Italy experienced a very rapid expansion of output and foreign trade, accompanied by a remarkable degree of price and wage stability and an increase in external reserves.]

UNITED NATIONS. Community Development and Economic Development. Part I: A Study of the Contribution of Rural Community Development Programmes to National Economic Development in Asia and the Far East. Part IIA: A Case Study of the Ghost Community Development Block, Uttar Pradesh, India. Part IIB: A Study of Farmers' Associations in Taiwan. Bangkok: United Nations, 1960. 9". 7s. each.

[Part I includes a description of the evolution of community development programmes in Asia and examines their contribution to current output, capital formation and attitudes of mind. A useful list of problems for further study is added. The authors conclude that the programmes have made a modest contribution to agricultural progress but have contributed little directly to the expansion of village industries. The detailed study of the Indian project indicates slight material progress, but, more hopeful, finds a gradual but marked change in the outlook of cultivators on new production techniques. In Taiwan the farmers' associations have had a long history. Since the War they have been reorganised into multi-purpose co-operatives with Government support which, apparently, have been highly successful.]

UNITED NATIONS. World Economic Survey, 1960. New York: United Nations, 1961. 11". Pp. 237.

[To be reviewed.]

"A very comprehensive survey of the subject"
C. GORDON TETHER *The Financial Times.*

A Dynamic Theory of Forward Exchange

PAUL EINZIG

The first book to give a detailed account of Forward Exchange practice, theory and policy in the post-war world. Dr. Einzig's book, *The Theory of Forward Exchange* (1937), has not been superseded as the generally recognised standard book on the pre-war system. But there have been many important practical changes and these, together with some changes in the broader aspects of the subject, call for a revised theory and a re-thinking of official policies. 60s.

MACMILLAN

BOOKS ON

ECONOMICS AND ECONOMIC HISTORY

New and Secondhand
English and Foreign

W. Heffer & Sons Limited

Petty Cury • Cambridge • England

FRIEDRICH K. LÄGE

Secular Inflation

Translated from the German

1961, x + 106 pp., 32s.

Any serious economist interested in this problem who is prepared to abandon his favourite, though erroneous, theories and to make a careful study of Läge's work, will find that he is better equipped to approach the eternal controversy over inflation with fuller knowledge and greater understanding.

Finanz und Wirtschaft, Zurich

D. Reidel Publishing Company
DORDRECHT-HOLLAND

HEINZ W. BRAND

The Fecundity of Mathematical Methods in Economic Theory

Translated from the German

1961, viii + 56 pp., 25s. 6d.

CONTENTS – 1. Introduction. 2. The Logical Distinction between two Types of Mathematical Method – Respectively Mathematical Presentation and Mathematical Operation. 3. Attempted Operational Assessment of the Intellectual Economy due to using Mathematical Methods. 4. Investigation of the Intelligibility of Mathematical Methods. 5. Critical Appraisal of the Accuracy of Mathematical Methods as applied to Economic Theory. 6. Conclusions. Bibliography.

D. Reidel Publishing Company
DORDRECHT-HOLLAND

AVAILABLE AGAIN

ON NATIONAL ACCOUNTING

by Ingvar Ohlsson

Second Impression

A theoretical investigation of the foundations of national accounting and national income calculations.

In a special section technique and results of the Swedish National Budget are discussed.

Published by National Institute of Economic Research (Konjunkturinstitutet), Stockholm.

Price:— Sw. kr. 25:00 (paper back) 32:00 (cloth bound)

Distribution: ALMQVIST & WIKSELL, STOCKHOLM

THE STRUCTURE OF INDUSTRY IN BRITAIN

G. C. ALLEN

'For those wanting a broader view of the facts of British industrial life, Professor G. C. Allen has given the results of his long and acute observation in a small book . . . This is a study of how industry has changed during the present century and of some of the complexities of market behaviour, of industrial relations, and of State control . . . A wise and well-written book, which should increase public respect for what economists have to offer, not least because Professor Allen shows himself to be aware that mankind has greater purposes than making money.'

G. F. Carter, The Guardian

12s. 6d.

LONGMANS

THE RULING CLASS

A Study of British Finance Capital

S. Aaronovitch

This book offers an analysis of the main groupings of finance capital in Britain. It also examines the gradual fusion of banking with industrial capital, the intervention of the State in economic life and the ways in which finance capital is actually integrated with the State.

12s. 6d.

LAWRENCE & WISHART

INTERNATIONAL ECONOMIC PAPERS

Translations prepared for the International Economic Association

No. 10

CONTENTS

Tax Principles and Tax Policy — ERIK LINDAHL
Ekonomi Politisk Samhälle, 1950

Price Stability, Economic Growth and Income Distribution — GOTTFRIED BOMBACH
Schweizerische Zeitschrift für Volkswirtschaft und Statistik, 1959

International Inequalities and General Criteria for Development Aid — H. THEIL
De Economist, 1953

Note on the Cost of Railway Transport — W. NORDLING
Annales des Ponts et Chaussés, 1866

Marginal Utility — PAUL ROSENSTEIN-RODAN
Handwörterbuch der Staatswissenschaften, 1927

Inflation in Chile: An Unorthodox Approach — OSVALDO SUNKEL
El Trimestre Economico, 1958

The Stockholm School versus the Quantity Theory — BERTIL OHLIN
Ekonomisk Tidskrift, 1945

The Role of Amortization in Investment Programming — MAURICE BOITEUX
Revue de Recherche Operationnelle, 1957

Some Problems of Price Formation in a Socialist Economy — Y. MALISHEV
Voprosy Ekonomiki, 1957

Frederik Zeuthen — HANS BRems
Nationalekonomisk Tidskrift, 1959

Classified Index of I.E.P., Volumes 1–10

London — 1960 — New York

MACMILLAN & CO. LTD — THE MACMILLAN COMPANY

ROYAL STATISTICAL SOCIETY

The Journal of the Royal Statistical Society is published in two series: SERIES A (GENERAL), four times a year, 25s. each part, annual subscription £4 4s., U.S. $12, post free; SERIES B (METHODOLOGICAL), two issues a year, 30s. each part, annual subscription £3 2s., post free.

Volume 124, Series A (General) CONTENTS Part 3, 1961

An experiment in the matching of an ascendant (With Discussion) . . . D. V. Lindley
The intercorrelations between the moments possessed by a group of families in the Netherlands . . . E. F. Driem
Plots of heath checks . . . J. A. Heady
Discussion on the papers by Dr. Driem and Mr. Heady . . . N. L. Johnson
Sequential analysis: a survey . . . D. Freiberger
A technique for estimating a contingency table, given the marginal totals and some supplementary data . . . A. R. Ilersic
Statistical Illustrations . . . The Editor of *The Statist*
Wholesale prices in 1960 . . . Obituary: Charles Jordan
Reviews; Current Notes; Book List

Obtainable through any bookseller or direct from:

Royal Statistical Society, 21 Bentinck Street, London, W.1

KYKLOS

International Review for Social Sciences

Vol. XIV, 1961, Fasc. 3

Current Economic Problems . . . Per Jacobsson
The Trifilia Plan: Diagnosis, Remedy, and Alternatives . . . Leland B. Yeager
Integration in Less Developed Areas . . . Robert L. Allen
Das Verhältnis von Staat und Wirtschaft in Deutschland am Beginn der Industrialisierung . . . Wolfram Fischer
Some Interrelationships between Agricultural Trade and Economic Development . . . Boris C. Swerling
Marketable Surplus of Food and Price Fluctuations in a Developing Economy . . . P. N. Mathur and H. Ezekiel
A Note on Agriculture in the European Common Market . . . J. H. Richter
The Impact of Price Level Changes on the Measurement of Business Income . . . R. E. Sleeswijk and T. E. Hollander
Besprechungen—Comptes rendus—Reviews
Bibliographie—Bibliography

All articles are followed by tri-lingual summaries. Published quarterly. Annual subscription Swiss Fr. 28.00, postage included.

Order from your bookstore or from the publisher:

KYKLOS-VERLAG, POSTFACH 165, BASEL 2, SWITZERLAND

Scottish Journal of Political Economy

The Journal of the Scottish Economic Society

VOLUME VIII NOVEMBER, 1961 NUMBER 3

Some Recent Contributions to a Macro-Economic Theory of Income Distribution . . . K. W. Rothschild
John Millar . . . A. L. Macfie
Property Speculators and the Building of Glasgow, 1783–1870 . . . J. R. Kellett
Economic Problems of a Multi-racial Society—The Fiji Case . . . A. T. Peacock
A Note on Regional Differences in Productivity, Profitability and Growth . . . R. L. Smyth
A Note on Cost Inflation in the U.S.A. . . . A. E. Holman

The **Scottish Journal of Political Economy** is published in February, June, and October, and is free to members of the Scottish Economic Society. Applications for membership should be made to the Treasurer, Scottish Economic Society, 142 St. Vincent Street, Glasgow, C.2, enclosing the annual subscription of £1 5s. od. The Journal may also be obtained by non-members of the Society by ordering through any bookseller or direct from the publisher Oliver & Boyd, Tweeddale Court, Edinburgh, price 10s. per single copy.

THE AGRICULTURAL HISTORY REVIEW

The Journal of the British Agricultural History Society

Edited by H. P. R. Finberg

Volume IX, Part ii September 1961

Agricultural Progress in Open-Field Oxfordshire . . . M. A. Havinden
On Open Town-Fields . . . E. R. R. Green
Holly as a Winter Food . . . Jeffrey Radley
Agricultural Statistics in Scotland before 1866 . . . George Houston
Some Terms used in Agrarian History: a Glossary . . . R. A. Butlin

The price of a single copy of the Review which is published twice a year is 12s. 6d. The annual subscription to the Society is one guinea. Copies of the Review or details of the Society may be obtained from the Secretary, J. W. T. Higgs, The British Agricultural History Society, c/o University of Oxford Department of Agriculture, Parks Road, Oxford.

OCCUPATIONAL PSYCHOLOGY

Editor: Alec Rodger

July 1961 VOLUME 35, No. 3

Psychopathology and Competition: Part 2, Work and Competition — Lawrence Zelic Freedman and Stanley A. Leavy
Motives of Workpeople who Restrict their Output — D. J. Hickson
Product Testing and Consumer Food Preferences — A. C. McKennell
Some Psychological Aspects of Taste Testing — J. M. Harries
The Fish Technologist's Attitude to Food Assessment — C. L. Cutting and R. Spencer
Some Recent Investigations Concerning the Assessment of Quality in Kippers — J. O. Robinson
Intelligence and Wastage of Student Mental Nurses — T. G. Crookes and J. G. French
Sydney Smith as a Psychologist: A Study in Biographical Psychology — T. M. Higham
Three Comments on "Training Made Easier"
Book Reviews
Other Books Received

Annual subscription 30 shillings

National Institute of Industrial Psychology, 14 Welbeck Street, London, W.1

THE CANADIAN JOURNAL OF ECONOMICS & POLITICAL SCIENCE

The Journal of the Canadian Political Science Association

Volume XXVII, November 1961 Number 4

Social Studies — C. A. Ashley
The West Indies: Improbable Federation — Elizabeth Wallace
Economic History and Economic Underdevelopment — Barry E. Supple
Social Theory and the Mass Media — Thelma McCormack
Market Concepts in Political Theory — C. B. Macpherson
Canadian Anti-Combine Administration, 1952-1960 — G. Rosenbleth and H. G. Thurburn
Flexible Exchange Rates and Employment Policy — Robert Mundell

Notes
The Lieutenant-Governor's Discretionary Powers: The Reservation of Bill 56 — J. R. Mallory
Trade Gains in the Short Run: A Reply to Mr. Kemp — Stephen Enke
Monograph Studies Based on the 1961 Census — W. E. Duffett

Review Article
Water Resource Development — Clarence L. Barber

$6.00 per year. $1.50 per single issue

UNIVERSITY OF TORONTO PRESS, Front Campus, University of Toronto, Toronto 5, Canada

THE SOUTH AFRICAN JOURNAL OF ECONOMICS

Editors: Professor C. S. Richards (*Managing Editor*), Dr. W. J. Busschau, Professor H. M. Robertson

Volume 29, No. 2 JUNE 1961

The Introduction of a Decimal Coinage System in the Union of South Africa — Dr. E. H. D. Arndt
The Finance of Urban Local Government in Uganda — T. A. Kennedy
The Formal Analysis of Joint Supply — R. T. McKinnell
Dr. W. J. Busschau on *Gold and World Liquidity*: A Review Article — L. H. Samuels
Professor R. Triffin on *Gold and the Dollar Crisis*: A Review Article — P. F. D. Wallis
Reviews
Notes and Memoranda
The Free Port of Copenhagen — R. W. K. Parsons
The Department of Labour's Memorandum on Work Reservation — Mary V. Piercy
Recent Publications

Editorial communications, contributions (in duplicate), and books for Review should be addressed to the Joint Editors, P.O. Box 5316, Johannesburg.

Business communications should be addressed to the Secretary at P.O. Box 5316, Johannesburg.

THE INDIAN ECONOMIC JOURNAL

The Quarterly Journal of the Indian Economic Association
Edited by C. N. Vakil, R. Balakrishna, P. R. Brahmanand

Vol. IX October 1961 No. 2

I. ARTICLES
A Diagrammatic Representation of the Policy of Accounting Prices — A. Qayum
Lessons for Underdeveloped Countries from the Japanese Experience of Economic Development — Hugh T. Patrick
Marginal Utility, Interpersonal Comparison and the Theory of Taxation — David Garvey
A Theory of Optimum Tariff Policy — V. R. Panchamukhi
Working of the Sterling Area Gold and Dollar Pool 1948-1958—An Essay in Regional Multi-lateral Payments System — Ajit Bhagat

II. REVIEWS
III. NOTES

All communications should be addressed to

The Editor, The Indian Economic Journal, Department of Economics, University of Bombay, Bombay 1 (India)

Per copy: Rs. 3 or 7s. 6d. or $1.25 *post free* *Per annum:* Rs. 15 or £1 5s. or $4 *post free*

SOCIAL AND ECONOMIC STUDIES

A Journal devoted to research, especially in the problems of economic growth, social change, and political action in underdeveloped territories.

Among recent papers and publications are the following:

A National Accounts Study of the Economy of Barbados . . . . . JEANNETTE BETHEL
The Economic Future of British Guiana . . . . . PETER NEWMAN
West Indian Household Budgets . . . . . G. E. CUMPER
Comments on "The Economic Future of British Guiana," by Peter Newman
K. BERRILL, A. P. THIRLWALL, G. E. CUMPER, K. E. BOULDING
Export Stimulation, Import Substitution, and Latin-American Development . . . GERALD M. MEIER
Note on "Sport" Inflation . . . . . JOHN H. ADLER
Some National Income Aggregates for Jamaica at Constant Prices . . . . . JEANNETTE BETHEL
The Imputation of Values to Intra-Company Exports: The Case of Bauxite . . R. A. LABARGE
Mixed Economic Statecraft and Democratic Safeguards . . . . . KENNETH K. KURIHARA

Annual subscription per volume of 4 numbers £1 10s. od.; U.S., $4.25; W.I., $7.20.

INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
University College of the West Indies, Jamaica, W.I.

THE ECONOMIC RECORD

Vol. XXXVII — The Journal of the Economic Society of Australia and New Zealand — No. 79

SEPTEMBER, 1961

The Australian Economy, August, 1961 . . . . . A. R. HALL

ARTICLES

The Significance of Recent Developments in Asia for the Economic Future of Australia . . . . . SIR JOHN CRAWFORD
Monetary Policy in Australia, 1960/61 . . . . . R. F. HENDERSON
Some Demographic Observations on First Order Births in the Light of the Cohort Approach . . . . . E. G. JACOBY
The Origins of Modern Economic Theory . . . . . HARRO BERNARDELLI
Factor Price Equalisation in International Trade and Returns to Scale . . . . . M. F. LAIDO
Crying Over Split Milk . . . . . P. H. GROSS
The Organisation of the Overseas Trade in New South Wales Coal, 1860 to 1914 . . . . . K. H. BURLEY

NOTES

The "Built-in-Stability" of the Australian System of Taxation, 1945–1959 . . . . . Z. M. ZURBRUEG
Three Hire Purchase Surveys . . . . . B. J. GORDON

NEWS AND NOTES

REVIEWS

Annual Subscription £2 2s. od. Published four times a year. Single copies, 14s.

MELBOURNE UNIVERSITY PRESS

Registered in Australia for transmission by post as a periodical

Members of the Royal Economic Society may join the Economic Society of Australia and New Zealand at the reduced rate of 16s. 6d. (Australian). Subscriptions must be forwarded to the Secretary, Royal Economic Society, 21 Bentinck Street, London, W.1.

REVUE DE SCIENCE FINANCIÈRE

The French Review of Public Finance

Number 4. October–December 1961

Aspects de la fiscalité dans la C.E.E. . . . . CORCIANI (ROME)
Les problèmes de double imposition entre la France et la République de Côte d'Ivoire . . . . . G. TEXIER (POITIERS)
L'économie américaine en 1960: Prospérité et déception . . . . . L. A HARRIS (COLOGNE)
La pression fiscale dans les pays capitalistes et dans les pays socialistes . . . M. WERALSKI (VARSOVIE)
Les finances dans les Etats socialistes . . . . . L. KUROWSKI (VARSOVIE)
Chronique des finances étrangères . . . . . LEGAILLON
Chronique de jurisprudence fiscale . . . . . M. CHRESTIEN
Documents budgétaires . . . . . M. BAIRD
Notes et mémorandas: Septième Rapport de la Commission de vérification des comptes des entreprises publiques

The *Review* is published quarterly. Yearly subscription abroad 45 N.F. or 9.50 U.S.A. dollars. Orders can be placed at Pichon and Durand-Auzias, 20, rue Soufflot, Paris (Ve) and through Stechert-Hafner, 31 East 10th Street, New York, N.Y.

ECONOMIE APPLIQUÉE

Archives de l'Institut de Science Economique Appliquée

(The French Journal of Economic Science)

Directeur: FRANÇOIS PERROUX, *Secrétaire Général:* H. BONJOUR, I.S.E.A., 33 Boulevard des Capucines, Paris, 2ème

VOLUME XIV, Nos. 2-3 — APRIL-SEPTEMBER, 1965

Introduction . . . . . F. RUSSO
Remarques sur l'introduction de la notion de progrès technique dans la science économique . . . . . J. FOURASTIÉ
Recherche-développement et production . . . . . W. G. WAFFENSCHMIDT
Des interventionismes de la recherche et des processus de développement dans les pays industrialisés . . . . . R. PRÉ
L'offre d'inventeurs et d'inventions . . . . . F. MACHLUP
Invention et recherche technique . . . . . F. MACHLUP
Elaboration d'un programme de recherches . . . . . P. JACQUEMIN
Conditions de l'innovation industrielle . . . . . B. R. WILLIAMS
Variations par secteurs de l'effort de recherche-développement en Grande-Bretagne . . . . . B. R. WILLIAMS
La répartition des inventions dans l'industrie . . . . . J. SCHMOOKLER
Recherche scientifique pure et recherche appliquée: leurs relations . . . . . CH. SADRON
Recherche officielle et recherche privée . . . . . F. ROBIN
Recherche militaire et économie . . . . . GÉNÉRAL GUÉRIN
Stratégie de la propagation de l'information technique dans les milieux agricoles . . . . . L. ESTRANGIN
La théorie économique de l'éducation dans les sociétés en voie de développement . . . . . R. L. MEIER
La recherche-développement considérée comme facteur de production . . . . . D. B. HERTZ
La stratégie et l'économique de la recherche . . . . . S. S. SENGUPTA
Le développement économique de l'Algérie (Cahier F-15) . . . . . J. GUILLOT
L'investissement dans les pays d'outre-mer (Cahier F-16)
G. LEDUC, Y. LE PORTZ, Y. OULID ABSA, G. DE BERNIS, M. FILALI, P. BAUCHET, A. BENKIRANE, M. CAPET, G. D'ARBOUSSIER, L. REY, LÊ THANH KHÔI, K. SAMPHAM
Le Progrès (Cahier M-9)
J. LACROIX, G. GRANGER, H. LEFEBVRE, R. BOIREL, F. MEYER, S. LANTHERI, J. POIRIER, K. E. BOULDING, F. PERROUX, V. MARRAMA, P. LAMBERT

ECONOMIA INTERNAZIONALE

QUARTERLY REVIEW

VOLUME XIV, NO. 3 — CONTENTS — AUGUST 1962

A Structural Study of International Capital Movement . . . . . S. CHAKRAVARTY
Liquidità internazionale e proposte di riforma del Fondo Monetario Internazionale . . . . . B. CUTELLI
Risparmio, investimento e livello generale dei prezzi . . . . . B. JOSSA
A Proposal for Safeguarding Steady Development . . . . . S. POTHUMA
The Question of a "System" in International Economic Relation . . . . . V. GLIŽE
Un contributo recente allo studio dell'inflazione . . . . . C. M. GUERCI
Some Recent Changes in Public Finance in the United States . . . . . L. SAVILLE

Bollettino Bibliografico ed Emerografico: Books Review—Titles of articles on recent periodicals. Summary of articles issued on recent periodicals.

Annual subscriptions to "ECONOMIA INTERNAZIONALE" It. Liras 5.000. Applications for subscription and correspondence should be addressed to the Direzione Istituti di Economia Internazionale, via Garibaldi 4, Genova (Italy).

PUBLIC FINANCE/FINANCES PUBLIQUES

International quarterly journal

Founded by J. A. Monod de Froideville

Directors: M. Masoin, A. T. Peacock, B. Schendstok, P. Senf

Foundation Journal Public Finance/Fondation Revue Finances Publiques

(Stichting Tijdschrift voor Openbare Financiën)

Volume XVI, 1961 — No. 2

Fiscal Policy and Interregional Resource Allocation . . . . . ALLAN WILLIAMS
Report of a Preliminary Survey of the Tax System of Argentina . . . . . STANLEY S. SURREY and OLIVER OLDMAN
Political Ceiling on Income Taxation . . . . . SEI FUJIYA
Notes and Discussions/Notes et discussions
Wells on Excise Tax Incidence in an Imperfectly Competitive Economy . . . . . PAUL DAVIDSON
A Reply
Note sur les origines du théorème de la pression fiscale différentielle de l'impôt indirect: la contribution de C. Colson . . . . . M. KENAN BULUTOGLU
Book Reviews/Comptes Rendus
New Publications/Publications nouvelles

Contributions in French or German are followed by an English summary.

Correspondence should be addressed to Prof. Dr. P. Senf, Universität des Saarlandes, Saarbrücken 15, Germany.

Orders may be placed with the representative Engue Foreign Publications, 44 *Chandos Place, London, W.C.2,* or directly with the Administration, 130 Rioumstraat, The Hague, Netherlands. Subscription rate for 1 year: £3 18s. 0d.

THE AMERICAN ECONOMIC REVIEW

ARTICLES — **VOLUME LI, NUMBER 4** — **SEPTEMBER, 1961**

A Theory of Economic Development . . . . . Gustav Ranis and J. C. H. Fei
Agriculture in Economic Development . . . . . B. F. Johnston and J. W. Mellor
Welfare Criteria for External Effects . . . . . E. J. Mishan
Stochastic Reserve Losses and Bank Credit . . . . . Daniel Orr and W. J. Mellon
The American Political Economy Club . . . . . A. W. Coats

COMMUNICATIONS

The Golden Rule of Accumulation . . . . . Edmund Phelps
The Bethlehem-Youngstown Case . . . . . L. S. Keyes
A Theory of Optimum Currency Areas . . . . . R. A. Mundell
Contributors to Three Professional Journals . . . . . P. A. Yotopoulos

The American Economic Journal, a quarterly, is the official publication of the American Economic Association. Annual dues or subscriptions are six dollars. Address editorial communications to Dr. Bernard F. Haley, Editor, American Economic Review, Stanford University, Stanford, California. For information concerning other publications and activities of the Association communicate with the Secretary-Treasurer, Dr. James Washington Bell, American Economic Association, Northwestern University, Evanston, Illinois. Send for information booklet.

THE QUARTERLY JOURNAL OF ECONOMICS

Vol. LXXV — **Number 4** — **November 1961**

The Origin and Early Development of Monopolistic Competition Theory . . . . . Edward H. Chamberlin
The Commission on Money and Credit . . . . . Arthur Smithies
Estimation of Optimum Size of Plant by the Survivor Technique . . . . . Thomas R. Saving
Aristotle, Schumpeter, and the Metallist Tradition . . . . . Barry J. Gordon
The Apparent Decline in Capital-Output Ratios . . . . . Paul S. Anderson
Some Gains from Trade in Produced Goods . . . . . Stephen Enke
Symposium: Decisions under Uncertainty
Risk, Ambiguity, and the Savage Axioms . . . . . Daniel Ellsberg
Distortion of Subjective Probabilities as a Reaction to Uncertainty . . . . . William Fellner
Comment . . . . . Howard Raiffa
Recent Publications

Edited by Arthur Smithies for the Department of Economics, Harvard University

$1.75 per copy; $6.00 a year; 3 years $17.00; Special Student Rate, $3.00 a year

Order from: the Harvard University Press, Cambridge 38, Massachusetts

METROECONOMICA

INTERNATIONAL REVIEW OF ECONOMICS

VOLUME XIV, No. 1

Extended Edgeworth bargaining games . . . . . M. Shubik
The output ceiling . . . . . Th. Dernburg
Is investment really unimportant? (Part One) . . . . . B. F. Massell
Some comments to the *Handwörterbuch der Sozialwissenschaften* . . . . . E. Fossati

Board of Editors: C. Bresciani Turroni, E. Fossati (*Managing editor*), R. Frisch, W. Leontief, G. Lutfalla, A. Maha, J. Marschak, G. U. Papi, R. W. Pfouts, R. Roy, E. Schneider, G. L. S. Shackle, R. Stone, J. Tinbergen, O. Tintner, F. Zeuthen.

Published every four months. Subscription rate $7 per year (two years $12). Communications to the editor to be addressed to *Professor Eraldo Fossati*, director of the Laboratorio di economia V. Pareto, *Università, Genova* (Italy). Communications regarding subscriptions to be addressed to *Licinio Cappelli*, publishers, corso Italia 12, *Trieste* (Italy) or *G. E. Stechert Hafner* Inc., 31 East Tenth Street *New York* 3, *N.Y.* (U.S.A.)

ECONOMETRICA

JOURNAL OF THE ECONOMETRIC SOCIETY

Vol. 29, No. 3 July, 1961

A Model of Japanese Economic Growth, 1878–1937 . . . . . L. R. Klein
Manufacturers' Inventories, Sales Expectations, and the Acceleration Principle . . . . . Michael C. Lovell
Rational Expectations and the Theory of Price Movements . . . . . John F. Muth
Efficient Allocation of a Multi-Purpose Sample . . . . . Leslie Kish
The Place of Least Squares in Econometrics . . . . . Frederick V. Waugh
The Interpretation of Cross Section Estimates in a Dynamic Model . . . . . Yehuda Grunfeld
A Reconsideration of Domar's Theory of Economic Growth . . . . . Ragnar Frisch
The Maximum Likelihood Estimation of Economic Relationships with Auto-Regressive Residuals . . . . . Denis Sargan
The Statistical Discrepancy in the National Accounts Revisited . . . . . Peter E. De Janosi
The Estimation of Distributed Lags: A Comment . . . . . E. Malinvaud
Report of the Stanford Meeting Report of the St. Louis Meeting
Book Reviews Announcements and Notes

Subscription to Non-Members: $12.00 per year.

Subscriptions to Econometrica and inquiries about the work of the Society and the procedure for applying for membership, should be addressed to Richard Ruggles, Secretary, The Econometric Society, Box 1264, Yale University, New Haven, Connecticut.

ECONOMICA

Published Quarterly

New Series, Volume XXVIII, 1961, No. 111 — **August, 1961**

CONTENTS

International Trade and Economic Development . . . . . A. K. Cairncross
Ricardo and Marx . . . . . G. S. L. Tucker
Domestic Air Transport Policy—Part II . . . . . Lucien Foldes
Unemployment and the Rate of Change of Money Earnings in the United States, 1900–1958 . . . . . Rattan J. Bhatia
The Replacement of Obsolescent Plant . . . . . F. H. S. Brown and R. S. Edwards
The Value of Stock Exchange Transactions in Non-Government Securities, 1911–30 . . . . . Felix Paukert
A Geometrical Note on the Box Diagram . . . . . Andreas S. Gerakis
The Possibility of Underemployment in Price Changes . . . . . M. McManus
A Note on Kleiman on Comparative Advantage . . . . . M. D. Steuer
A Rejoinder . . . . . E. Kleiman
Pareto Revealed . . . . . J. R. Hicks

Annual Subscription £2. 5s. 0d. per annum, post free. Copies can be obtained from any bookseller or from the Publication Department of the London School of Economics, Houghton Street, W.C.2.

ECONOMICA

Published Quarterly

New Series, Volume XXVIII, 1961, No. 112 — **November 1961**

CONTENTS

Understanding International Trade . . . . . Ely Devons
A Simple Model of Employment, Money and Prices in a Growing Economy . . . . . A. W. Phillips
A Method of Consumer Demand Analysis Illustrated . . . . . I. F. Pearce
Monetary Management in Dependent Economies . . . . . J. O. W. Olakanpo
A Further Diagrammatic Illustration of Properties of the Keynesian Income Equilibrium . . . . . L. R. Webb
A Note on Compensation Tests . . . . . George Sladon
The Russian Loan of 1855: A Postcript . . . . . Frank W. Fetter
Comment . . . . . Olive Anderson
Interest Rates and Asset Prices . . . . . Brian Tew

Annual Subscription £2 5s. 0d. per annum, post free. Copies can be obtained from any bookseller or from the Publication Department of the London School of Economics, Houghton Street, W.C.2.

PUBLICATIONS OF THE ROYAL ECONOMIC SOCIETY

	Price to Members £ s. d.	Published Price £ s. d.
A Catalogue of the Library of Adam Smith. Prepared by J. BONAR	12 6	1 1 0
Official Papers. By ALFRED MARSHALL	2 6	10 6
The Letters of David Hume. Edited by J. Y. T. GREIG (2 vols.)	1 7 6	2 10 0
The Works of Ricardo. Vols. I to X Edited by P. SRAFFA Each vol.	16 0	1 4 0
Jeremy Bentham's Economic Writings. Edited by W. STARK. Set of 3 Vols.	1 10 0	
Separate volumes. Vol. I	12 6	1 10 0
„ II	12 6	2 0 0
„ III	12 6	2 5 0
Walras' Elements of Pure Economics. Edited by W. JAFFÉ	1 8 0	2 2 0
University Teaching of the Social Sciences: Economics. Edited by C. W. GUILLEBAUD	7 0	11 6
Studies in Economic History. By GEORGE UNWIN	1 15 0	2 15 0
Cantillon's Essai sur la Nature du Commerce en Général. Edited by H. HIGGS	1 5 0	2 2 0

Application, including remittance, should be made by Members to:

The Secretary,
ROYAL ECONOMIC SOCIETY,
21 BENTINCK STREET,
LONDON, W.1

ROYAL ECONOMIC SOCIETY

PATRON:

HER MAJESTY THE QUEEN

COUNCIL:

President

PROFESSOR J. R. HICKS, F.B.A.

Vice-Presidents

LORD BEVERIDGE, K.C.B., D.Sc., F.B.A.
SIR ALEXANDER CARR-SAUNDERS, K.B.E., LL.D., Litt.D., F.B.A.
PROFESSOR SIR ALEXANDER GRAY, C.B.E.
SIR ROBERT HALL, K.C.M.G., C.B.
PROFESSOR SIR RALPH HAWTREY, C.B., F.B.A.
LORD ROBBINS, C.B., F.B.A.
PROFESSOR SIR DENNIS ROBERTSON, C.M.G., F.B.A.
PROFESSOR R. H. TAWNEY, F.B.A.

Professor G. C. ALLEN, C.B.E.
Professor R. G. D. ALLEN, C.B.E., F.B.A.
Mr. W. M. ALLEN.
Professor A. J. BROWN.
Professor E. H. PHELPS BROWN, M.B.E., F.B.A.
Sir SYDNEY CAINE, K.C.M.G.
Professor A. K. CAIRNCROSS, C.M.G., F.B.A.
Professor S. R. DENNISON, C.B.E.
Professor E. DEVONS.
Mr. C. W. GUILLEBAUD, C.B.E.
Professor H. J. HABAKKUK.
Professor H. HAMILTON.
Mr. F. E. HARMER, C.M.G.
Sir ROY HARROD, F.B.A.
Mr. N. KALDOR.
Mr. W. T. C. KING.
Sir DONALD MACDOUGALL, C.B.E. (*Hon. Secretary*).
Professor J. E. MEADE, C.B., F.B.A.
Professor E. V. MORGAN.
Mr. H. C. B. MYNORS.
Professor A. T. PEACOCK.
Professor Sir ARNOLD PLANT (*Hon. Secretary*).
Mrs. JOAN ROBINSON, F.B.A.
Mr. C. T. SAUNDERS, C.M.G.
Professor R. S. SAYERS, F.B.A.
Professor G. L. S. SHACKLE.
Professor J. H. B. TEW.
Professor B. THOMAS, O.B.E.
Professor R. C. TRESS.
Professor G. J. WALKER.

Professor E. A. G. ROBINSON, C.M.G., O.B.E., F.B.A., *Joint Editor & Secretary.*
Professor C. F. CARTER, *Joint Editor.*
Mr. R. C. O. MATTHEWS, *Assistant Editor.*
Mr. A. D. MARRIS, C.M.G., *Hon. Treasurer.*
Mr. A. FULLER, *Assistant Secretary.*

Applications for Fellowship should be addressed by letter to the Secretary, Royal Economic Society, 21 Bentinck St., London, W.1. The Annual Subscription is fifty shillings. Any Fellow may compound for his future annual subscriptions by paying at once the sum of thirty-seven pounds ten shillings, subject, in the case of members who have already paid ten annual subscriptions, to a reduction of eight shillings in respect of every year for which such annual subscription has been paid, provided that the composition fee does not fall below thirty pounds. There is at present no entrance fee. Libraries, Institutions and Companies are admitted to the Society with full rights to receive all its publications at an Annual Subscription of fifty shillings. They are entitled to compound their subscriptions for a period of fifteen years on payment of thirty-three pounds.

Editorial Communications and **Books and Periodicals for Review** should be addressed to the Editor, Royal Economic Society, The Marshall Library, Downing St., Cambridge.

Communications respecting Advertisements should be addressed to the Secretary, Royal Economic Society, The Marshall Library, Downing St., Cambridge.

Printed in Great Britain by Richard Clay and Company, Ltd., Bungay, Suffolk